JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER VHS

HR-D700E/EG

SPECIFICATIONS

Format	: VHS PAL standard
Recording system	: Rotary, slant azimuth two-head helical scan system
Video signal system	: PAL colour and CCIR monochrome signals, 625 lines
Tape width	: 12.65 mm
Playing time	: 240 min. with E-240 video cassette
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Channel coverage	: VHF 47 – 89 MHz, 104 – 300 MHz, 302 – 470 MHz UHF 470 – 862 MHz
Aerial output	: UHF channels 32 – 40 (adjustable)
Power consumption	: 35 watts
Power requirement	: 220 V~, 50/60 Hz
Video	
Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	: 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	: 43 dB (Rohde & Schwarz noise meter)
Horizontal resolution	: 250 lines
Audio	
Input	: -3.8 dBs (CENELEC standard), more than 10 k-ohms, unbalanced
Output level	: -3.8 dBs (CENELEC standard), high impedance load
Output impedance	: Less than 1 k-ohm, unbalanced
Signal-to-noise ratio	: More than 40 dB
Frequency range	: 70 Hz to 10,000 Hz
Timer	: 1-year/8-programme timer
Dimensions	: 435 mm(W) x 95 mm(H) x 341 mm(D)
Weight	: 7.1 kg
Provided accessories	: Aerial Cable, Infrared remote control unit, "R6" battery x 2
Optional accessories	: VPS adapter (VU-V110E) VPV adapter (VU-V120E) VPS/VPV adapter (VU-V100E)

Design and specifications subject to change without notice.

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No. 82061
July 1988

NOTE: For a technical description, please refer to Technical Guide VTG82024 HR-D700/D500 PAL.

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SECTION 1
MECHANISM ADJUSTMENTS

1.1 GENERAL

1.1.1 Precautions

IMPORTANT:

1. Disconnect unit from power before removing or soldering components.
2. When removing a fastener (screw, washer, etc.), be careful not to drop it into the mechanism. If a fastener should be dropped, be sure to retrieve it.
3. The tape transport mechanism has been precisely adjusted at the factory and ordinarily does not require readjustment.
4. When removing a part, be very careful not to damage or displace other parts. (Be especially careful with the tape guides and rotary video head drum.)
5. For service procedures that call for operation of the set when the cassette housing is separated from the main-deck, perform as below.

1) Set a sheet of insulated material on the right of the chassis.
2) Remove the cassette housing from the main-deck and place it on the insulated sheet, but do not disconnect the connector from the M. CTL board.
3) Insert a cassette into the cassette housing. The housing mechanism functions to retract the cassette.
4) Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
5) The desired modes can be obtained by using the opration switches.

1.1.2 Required test equipment, fixtures and tools

For proper mechanical adjustment, the following test equipment, fixtures and tools are strongly recommended. Without them, a long trial-and-error period would be necessary, resulting in possible damage. In addition, general-purpose tools are required.

1. Test equipment required:
   Color television or monitor
   Oscilloscope: Wide-band, dual trace, triggered, delayed sweep
   Recording tape
   Alignment tapes

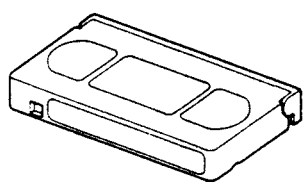
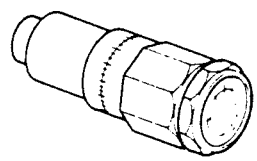
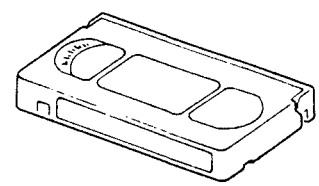
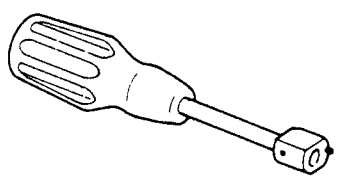
Alignment tape MH-2 	Torque gauge assembly PUJ48075-2 	Back tension cassette gauge PUJ48076-2 
A/CTL head position tool PUJ47351-2 		

Table 1-1-1 Fixtures and tools

1.1.3 Disassembly

1. Top cover
1) Take out five screws from the right, left and rear sides of the set.
2) Tilt up the rear end of the top cover, then remove it.

2. Front panel
1) Remove the top cover.
2) Bend three upper hooks of the front panel assembly upward to disengage them from their chassis retainers.
3) Disengage three lower hooks of the front panel assembly from their chassis retainers in order to remove the front panel assembly.

3. Bottom cover
1) Take out three screws from the bottom side of the set.
2) Set free the bottom cover from its six retainers of the chassis in order to remove the bottom cover.

4. Cassette housing door
1) Remove the front panel assembly.
2) Bend center of the cassette housing door toward you, then pull out the right end from the cassette housing.
3) Use care regarding the torsion spring, then pull out the left end of the cassette housing door to remove it.

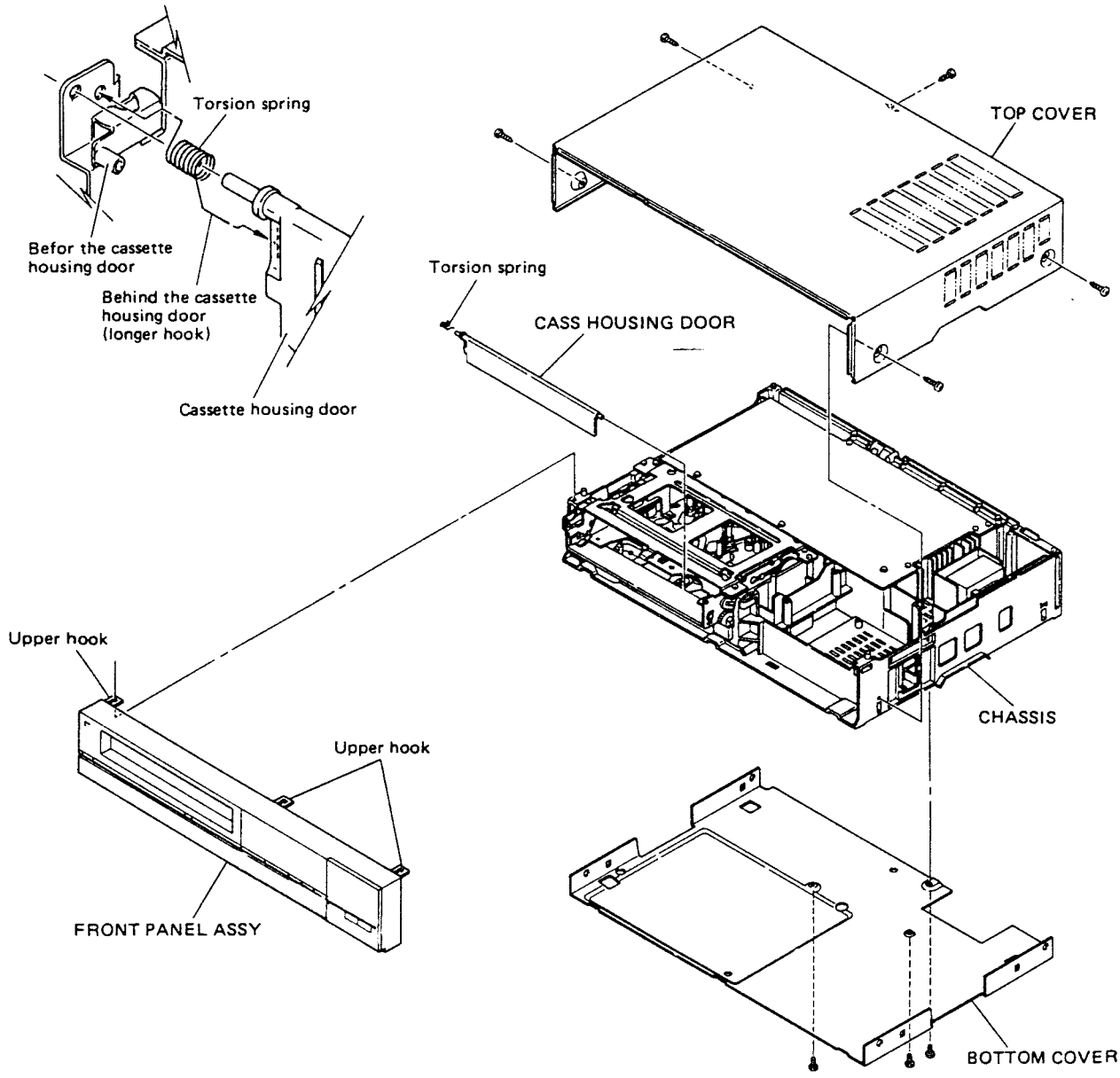


Fig. 1-1-1 Removal of external covers

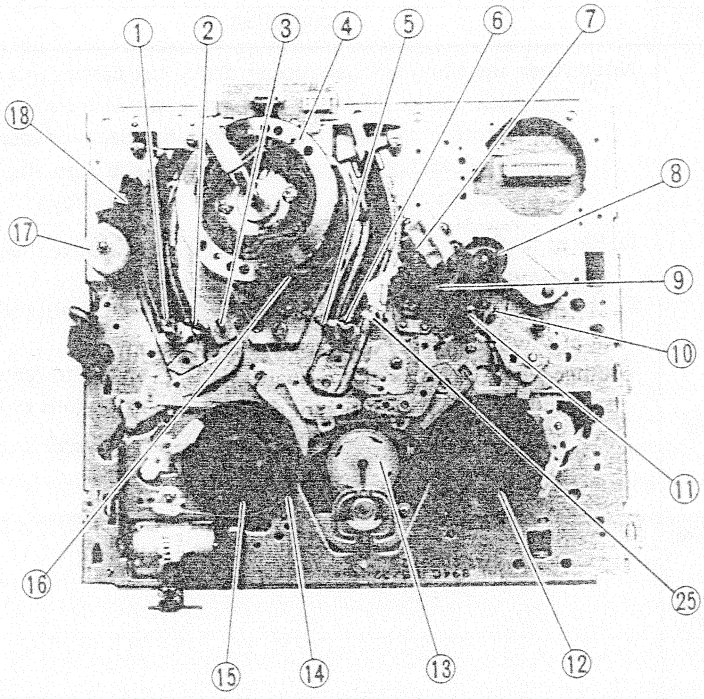


Fig. 1-1-2 Top view of main-deck

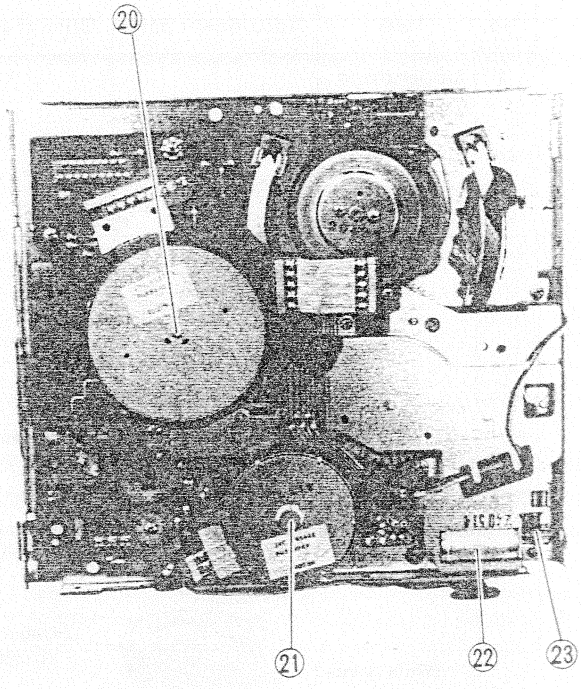


Fig. 1-1-3 Bottom view of main-deck

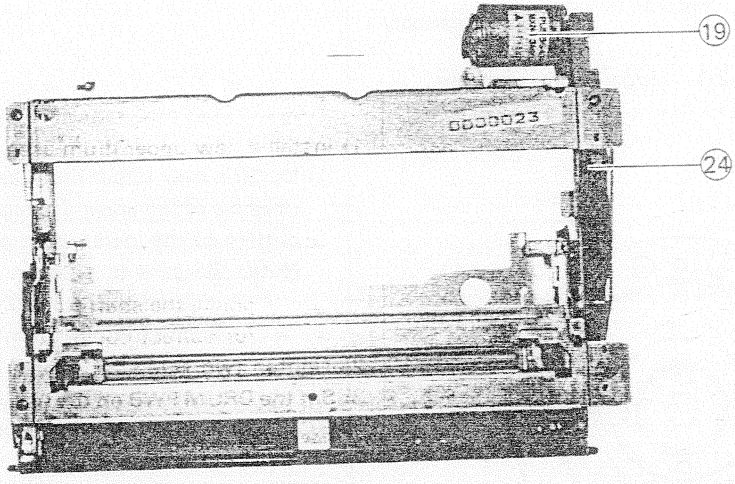
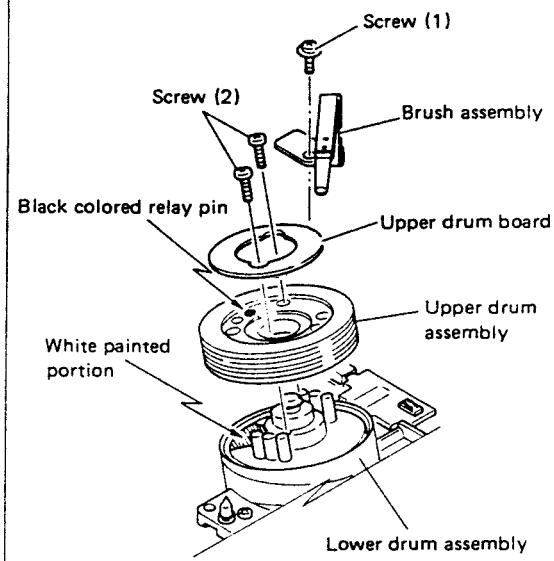
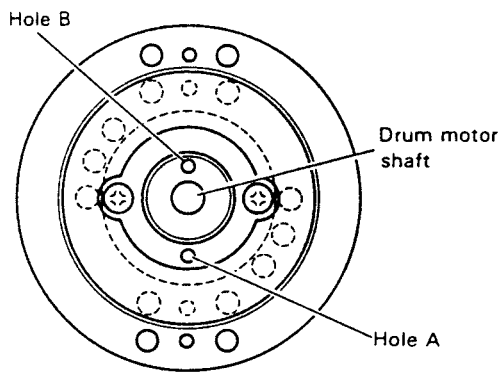


Fig. 1-1-4 Cassette housing

1. Supply guide roller
2. Supply slant pole
3. Tension pole
4. Upper drum
5. Take-up slant pole
6. Take-up guide roller
7. A/C head
8. Pinch roller
9. Take-up guide pole
10. Guide arm
11. Capstan
12. Take-up reel disk
13. Reel idler
14. Tension band
15. Supply reel disk
16. Lower drum
17. Impedance roller
18. Full erase head
19. Cassette motor
20. Capstan motor
21. Reel motor
22. Mode motor
23. Mode belt
24. Cassette belt
25. Half loading pole

1.2 MAIN ASSEMBLY REPLACEMENT

No.	Item	Adjustment parts	Operating mode	Description
1	Upper drum assembly			**Note:** When installing the new upper drum, use care not to touch the video heads. If heads are soiled, clean with a soft, finely woven cotton cloth or chamois that has been moistened in alcohol. Hold lightly against the heads and turn the drum clockwise. By no means clean with a vertical stroke.
	— Removal —			1) Refer to Fig. 1-2-1. Take out screw (1) and remove the brush assembly. 2) Use a desoldering tool or desoldering braid to unsolder the upper drum boards. 3) Take out two screws (2) and raise the upper drum to remove it together with the upper drum board. (If this drum is to be reinstalled, use care not to touch or damage the heads.)
	 Fig. 1-2-1 Upper drum assembly			—
	—Installation—			1) Install a new upper drum assembly so that the black-colored relay pin of the upper drum assembly overlies the white painted portion of the lower drum assembly, as shown in Fig. 1-2-1. **Note:** Be sure to position the upper drum correctly. As indicated in Fig. 1-2-2, set hole A of the upper drum opposite the shaft from hole B of the lower drum. Check for correct position before tightening the screws. 2) Tighten two screws in a balanced manner. 3) Set the DRUM PWB on the upper drum assembly, then resolder it. 4) Clean the drum unit (particularly clean the upper drum assembly). 5) Mount the brush assembly in the original position, then tighten the screw to fix the brush assembly.
	 Fig. 1-2-2 Polarity of the upper drum			
	— Checks and adjustments —			After installing the upper drum, perform the following checks and adjustments (refer to appropriate Sections of this Manual). 1) FM waveform 2) Servo circuit 3) Video circuit 4) FM audio circuit

No.	Item	Adjustment parts	Operating mode	Description
2	A/C head (Audio/Control head) – Removal –			1) Disengage connectors attached to the A/C head board. 2) Take out two screws (1) and remove the A/C head together with the head base. 3) Unsolder and remove the A/C head board from the A/C head. 4) Take out screw (2) and remove the shield cap from the A/C head. 5) Take out three screws (3) and remove the A/C head from the head base. Use care regarding the three springs.

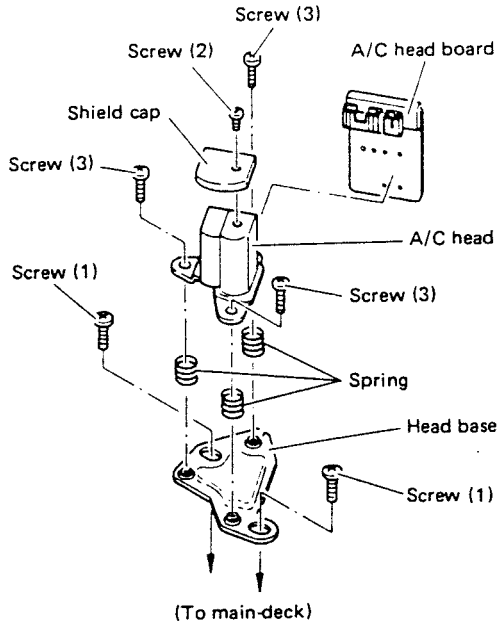


Fig. 1-2-2 A/C head

	– Installation –			1) Install the A/C head by reversing the removal steps of above. 2) Temporarily set the A/C head height above the head base for 6.6 mm (see Fig. 1-2-3).

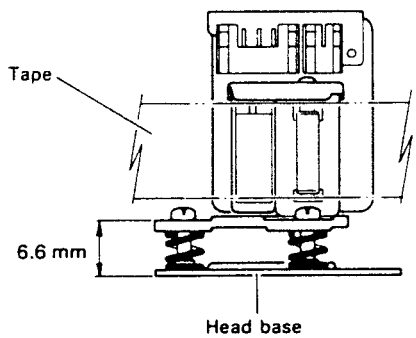


Fig. 1-2-3 A/C head height

	– Checks and adjustments –			1) Use a spare tape (not Alignment tape) and confirm proper operation of the tape transport (see Section 1.5). 2) Perform interchangeability adjustment (see Section 1.6).

No.	Item	Adjustment parts	Operating mode	Description
3	Tension band assembly			1) Take out screw (1) and disengage the tension band assembly from the tension arm assembly (see Fig. 1-2-4). 2) Remove and replace the tension band assembly. 3) Perform tension pole position adjustment (see Section 1.4).

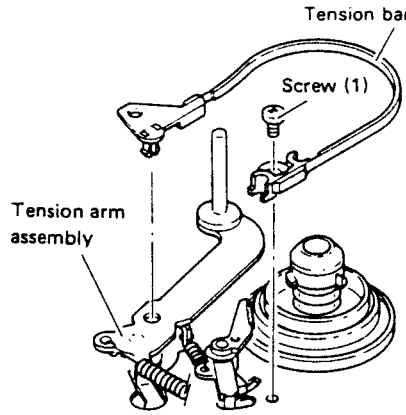


Fig. 1-2-4 Tension band assembly

1.3 ASSEMBLY PROCEDURE OF MECHANISM

No.	Item	Adjustment parts	Operating mode	Description
	A close relationship exists between the mode select switch and the mechacon circuit. Therefore, the mode select switch and control arm engagement determines the overall mechanical operations of the levers, gears, rollers, etc. If these parts are not properly positioned, the video deck becomes stalled in the unloading or Stop mode.			
1	Loading arm assemblies			These assemblies are comprised of loading gears, torsion springs and loading arms. 1) Refer to Fig. 1-3-1 and install the loading arm assemblies correctly.

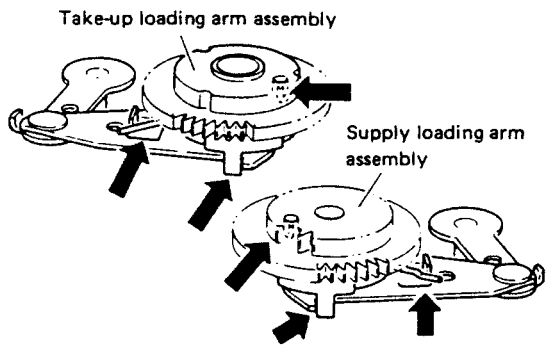


Fig. 1-3-1 Loading arm assembly (1)

2) The take-up and supply loading arm positions with respect to the loading gear holes are indicated in Fig. 1-3-2. This configuration is important to allow shifting to the next operation.

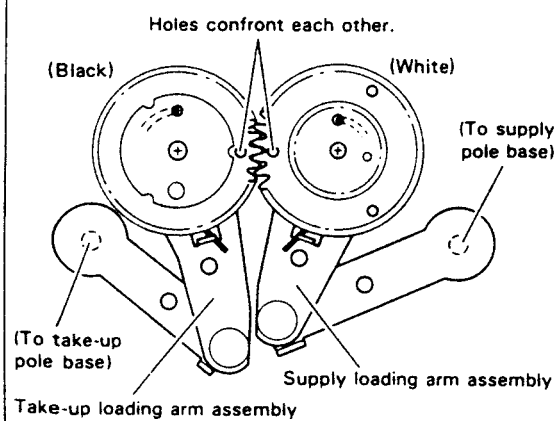


Fig. 1-3-2 Loading arm assembly (2)

No.	Item	Adjustment parts	Operating mode	Description
2	Control cam			1) Install the half loading cam on the cam bracket assembly, then mount the slide cam plate assembly so that its stud sets into the groove on the half loading cam. 2) Install the arm gear assembly on the cam bracket assembly. 3) Assemble the second gear and the control cam so that the stud of the control cam sets into the hole of the second gear. 4) Mount the above assembly (control cam and second gear) on the cam bracket assembly to satisfy the relation indicated in figure. 5) Do not turn the control cam from this position for the next step.
3	Cam bracket assembly			1) Refer to Fig. 1-3-4 and press the plate assembly toward the right to overlap the indicated hole with that of the main deck. 2) Then install the cam bracket assembly. **Note:** If the arm and loading gears do not mesh properly, use a jeweler's screwdriver or similar tool to engage the gear teeth while installing the cam bracket assembly.
4	Mode switch position			1) Engage the plate assembly and mode switch as shown in Fig. 1-3-5. Partially tighten screw (1) to where the switch can still be shifted for adjusting the position. 2) Press the plate assembly toward the right to where the holes are overlapped as in Fig. 1-3-4. Insert a jeweler's screwdriver into the holes to keep them aligned. 3) Shift the mode switch to align the V-notch as indicated in Fig. 1-3-5. Then tighten screw (1) to secure. 4) Remove the jeweler's screwdriver, then reinstall and solder the circuit board.

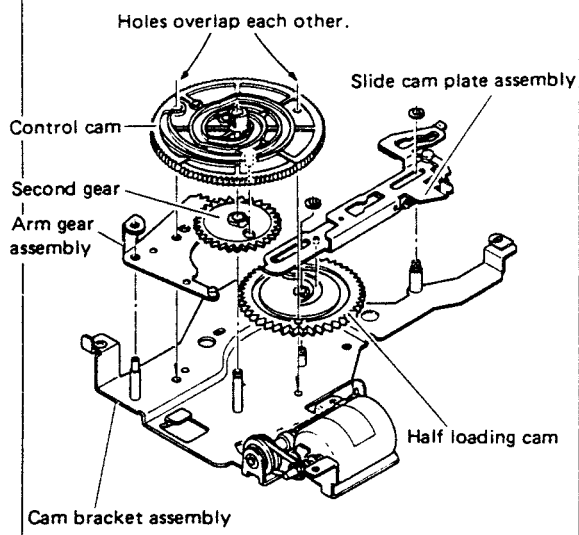


Fig. 1-3-3 Control cam

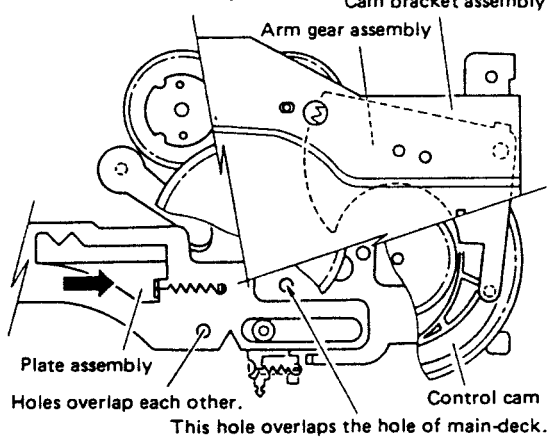


Fig. 1-3-4 Cam bracket assembly

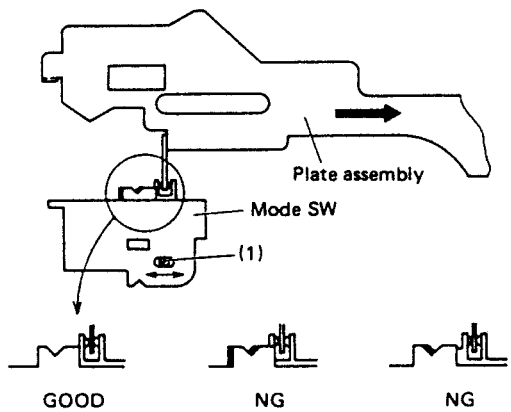


Fig. 1-3-5 Mode switch

1.4 CONFIRMATION AND ADJUSTMENT

No.	Item	Adjustment parts	Operating mode	Description
1	Tension pole position			1) Without a cassette tape, set for the Play mode (see Section 1.1). 2) Refer to Fig. 1-4-1. Slightly loosen screw (1). Adjust the tension band holder position for 0 mm separation between the tension arm and cutout position. 3) Tighten screw (1) to secure the tension band holder. 4) Use the back tension cassette gauge and set for the Play mode. 5) Check for a scale reading between 25 and 75. 6) If outside this range, clean the tension band contacting portions of the supply reel disk with alcohol, or check the condition of the tension arm spring. If necessary, replace the tension band assembly.
2	Take-up torque			1) Without a cassette tape, set for the Play mode (see Section 1.1). 2) Set the torque gauge on the take-up reel disk. 3) Grasp the torque gauge lightly so that it rotates and read the value when the scale matches the indicator needle. Confirm a value between 45 and 155. 4) If outside this range, clean the rubber portion of the idler arm with alcohol, or if necessary, check the reel motor drive circuit.

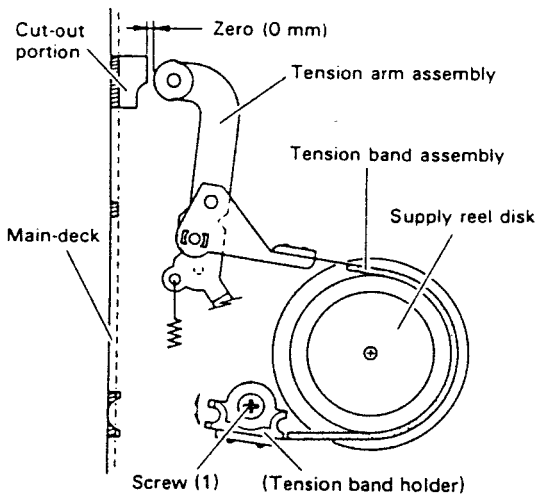


Fig. 1-4-1 Tension pole position

1.5 TAPE TRANSPORT CHECKS AND ADJUSTMENT PREPARATIONS

No.	Item	Adjustment parts	Operating mode	Description
	The tape transport system has been precision-adjusted at the factory and ordinarily does not require readjustment. However, adjustment may become necessary after long term usage or after replacing parts that affect the tape transport. The following steps mainly cover preparations for the interchangeability adjustments of Section 1.6.			
1	Guide roller			1) During interchangeability adjustments, the guide roller is turned with a flat-blade screwdriver to adjust its height and correct FM waveform linearity. Use a metric hex key (1.25 mm) to slightly loosen the setscrew at the base of the guide roller (see Fig. 1-5-1). Loosen the setscrew just sufficiently to allow the guide roller to be turned. If too loose, tape transport will be too unstable to permit correct adjustment.
2	Impedance roller			1) This compensates for tape running stability between the cassette and head drum. After adjusting the supply guide roller, the impedance roller height is adjusted for smooth tape transport at the lower flange. 2) Use a metric nutdriver (5.5 mm) to adjust by turning the upper nut (see Fig. 1-5-2). However, note that excess turning can disturb the FM waveform stability.
3	A/C head (audio/control head)			1) After adjusting the take-up guide roller, adjust the A/C head inclination for smooth tape travel at the lower flange of the take-up guide pole. Refer to Fig. 1-5-3.

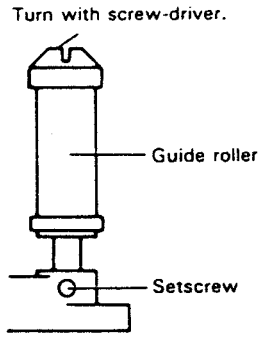


Fig. 1-5-1 Guide roller

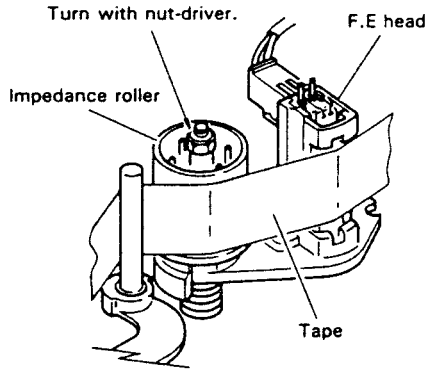


Fig. 1-5-2 Impedance roller

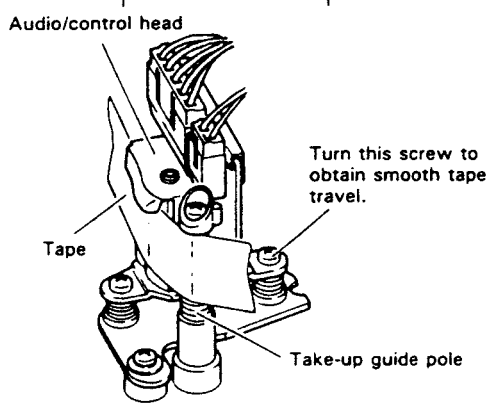


Fig. 1-5-3 A/C head

1.6 INTERCHANGEABILITY CHECKS AND ADJUSTMENTS

No.	Item	Adjustment parts	Operating mode	Description
	Before using costly Alignment tape, use a spare tape and confirm correct operation of the tape transport.			
1	FM waveform			1) Connect oscilloscope to the FM OUT testpoint of the video playback circuit. Trigger the oscilloscope externally with the signal from the drum flipflop (D-FF or FF) testpoint. Set the trigger slope to minus (−). 2) Play the MH-2 Alignment tape and adjust the tracking for maximum FM waveform output. Refer to Fig. 1-6-1. Confirm the relationships indicated in the figure for maximum output (a), minimum center output (b), minimum output at the drum intake (c) and minimum output at the drum output (d). 3) Adjustment is required if the above specifications are not fulfilled. Even when these are fulfilled, check that the FM waveform varies linearly overall. If not, slight deviation in tracking will cause a large proportional level drop to result in noise appearing in the picture. Therefore, in this condition, proceed to the following checks and perform adjustments where necessary. 4) Operate the tracking adjustment between minimum and maximum outputs of the FM waveform. Observe the portion of the waveform corresponding to the drum intake (see Fig. 1-6-2). As the tracking is adjusted, although the gain may increase or decrease, the geometric shape of this part of the waveform should remain consistent. If the shape varies, as shown by the incorrect examples in the figure, carefully perform adjustment of the supply guide roller height. 5) Next observe the portion of the waveform corresponding to the drum output (see Fig. 1-6-3), while operating the tracking adjustment. This should also vary only in gain, but not in shape. If the shape varies, as shown by the incorrect examples in the figure, carefully perform adjustment of the take-up guide roller height. 6) Check the overall FM waveform. Fine-adjust both guide rollers so that variation is as minimum and linear as possible. 7) Observe the tape travel at the guide rollers and guide poles. Confirm absence of tape creasing or curling. Confirm that the tape properly rides at the lower flange of the supply guide pole. Carefully adjust the guide pole height if necessary. This adjustment is important and affects FM waveform response. If creasing or curling is observed at the take-up guide pole, carefully adjust the audio/control head inclination so that the tape rides properly at the lower flange of the guide pole. Finally, again check the FM waveform.

$\frac{b}{a} \geqq 0.7$, $\frac{c}{a} \geqq 0.5$ and $\frac{d}{a} \geqq 0.5$

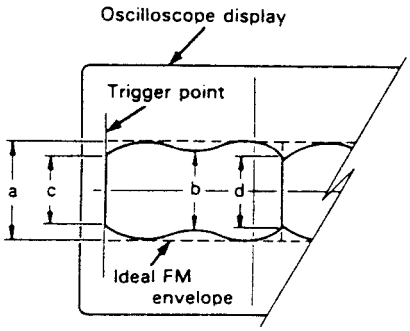


Fig. 1-6-1 FM envelope

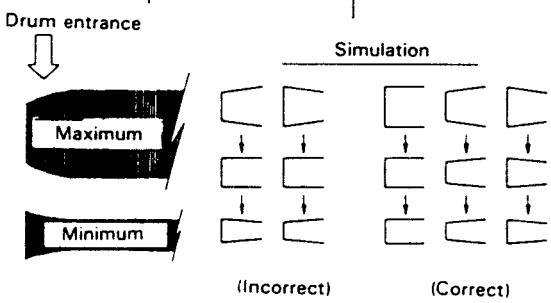


Fig. 1-6-2 Drum entrance

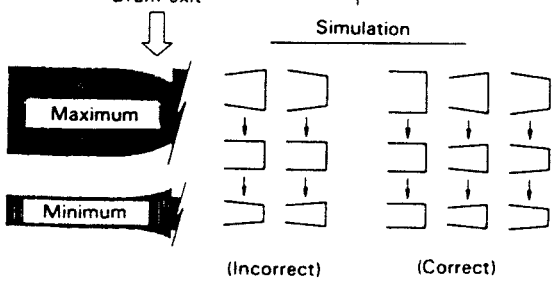
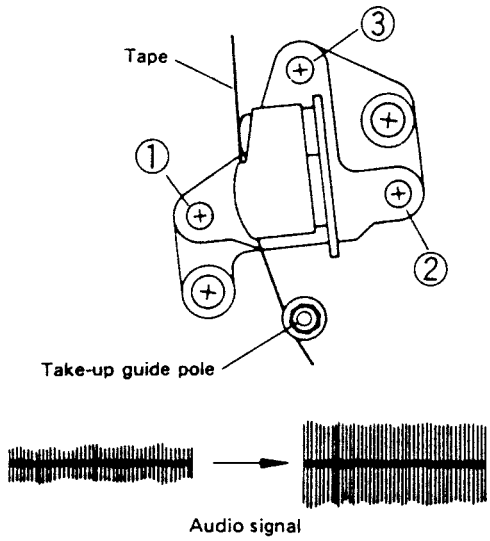
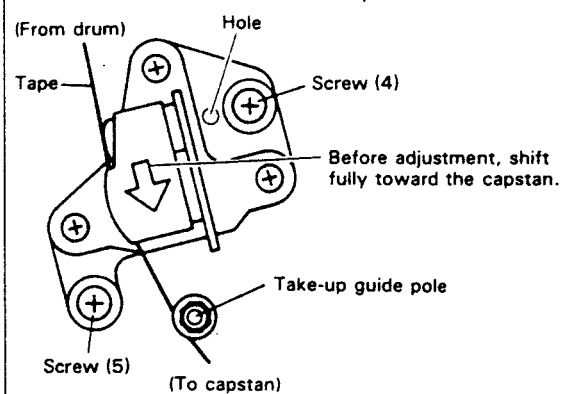


Fig. 1-6-3 Drum exit

No.	Item	Adjustment parts	Operating mode	Description
	Proper adjustment of the A/C head position is important for ensuring adequate audio output and S/N. Severe misalignment can prevent control signal pick-up and cause servo instability. Precise adjustment is particularly important for models that include tape indexing and addressing features, since these rely on control signal coding for operation. To observe the audio signal, connect an oscilloscope to the test point (AUDIO OUT) of the audio circuit, or directly to the audio output terminal. In some cases, monitoring the sound with headphones may be helpful.			
2	A/C head adjustments	 Fig. 1-6-4 A/C head		1) Play the stairstep (audio 7 kHz) portion of the MH-1 Alignment tape. 2) Adjust screw (3) (Fig. 1-6-4), which is the azimuth adjustment, for maximum output. 3) Turn screws (1), (2) and (3) by small and equal increments (about 45° at a time) to adjust the A/C head height for maximum audio output. Slightly raise and lower the height to confirm the maximum output position. 4) Observe the FM waveform and tighten the guide roller setscrews. Use care not to disturb the height adjustments. Then again confirm the FM waveform.
	This determines the distance between the sound and picture information on the tape. Correct adjustment is important for providing synchronization of picture and sound in the program. Observe the FM waveform by connecting an oscilloscope to the video play-back circuit test point (FM OUT). Trigger the oscilloscope externally with the drum flipflop signal. Use plus (+) trigger to view the CH-2 waveform. Set the tracking adjustment to the neutral (AUTO) position.			
3	Control head phase (X value)	 Fig. 1-6-5 Control head phase		1) Play the stairstep portion of the MH-2 Alignment tape. 2) See Fig. 1-6-5. Slightly loosen screws (4) and (5). Set the A/C head positioning tool over screw (4) with the pin of the tool inserted into the indicated hole. 3) Turn the tool counterclockwise to shift the A/C head fully toward the capstan direction. 4) While observing the CH-2 FM waveform, gradually turn the tool clockwise. Stop at the peak output position and tighten screw (5). Remove the tool and tighten screw (4). 5) Operate the tracking adjustment and confirm that the maximum FM waveform is obtained at the neutral setting. 6) If the FM output peak is not obtained at tracking neutral position, shift the A/C head at the FM output peak nearest to this position.

No.	Item	Adjustment parts	Operating mode	Description
4	Final checks			1) Supply a video or TV signal (monochrome is preferable). Use a spare tape and record and play back. Confirm that the playback FM signal conforms to the parameters indicated in Fig. 1-6-1. 2) Perform the checks and, if necessary adjustments, of the Electrical Adjustments Section for the servo, video and audio circuits.

SECTION 2
ELECTRICAL ADJUSTMENTS

2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Color television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Vector scope
5. Audio oscillator
6. Audio voltmeter
7. Digital voltmeter
8. Signal generator: RF/IF sweep/marker
9. Signal generator: PAL color bar, stairstep
10. Recording tape
11. Alignment tape: (MH-2)

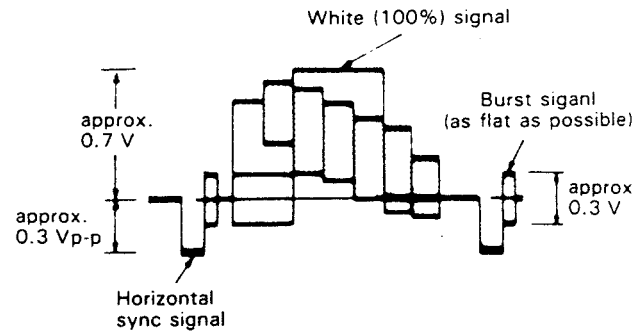


Fig. 2-1-1 Color bar signal of pattern generator

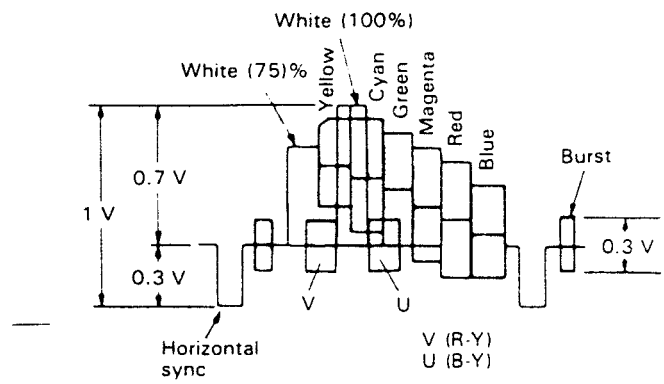


Fig. 2-1-2 Color bar signal waveform

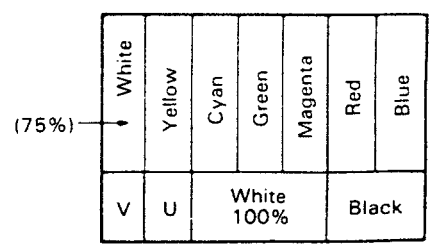


Fig. 2-1-3 Color bar pattern

2.2 TIMER CIRCUIT

Note: Unless otherwise noted, all test points and adjustments are located on the TIMER board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Timer clock	TP2	C10	• E-E	1. Connect a frequency counter between TP2 and GND. 2. Short between GND and TP3 (TEST), then short the leads of electrolytic capacitor C8 once in order to reset IC1. 3. Adjust C10 for 2048.000±0.002 Hz (488.2808 to 488.2818 μs).

2.3 SERVO CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the MAIN board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	PB Switching Point	VIDEO OUT	R465 (CH-1)	• PB • MH-2 Stairstep • Trigger slope (−) • SP mode	1. Connect an oscilloscope to VIDEO OUT. 2. Play back the stairstep segment of MH-2 alignment tape. 3. Trigger the oscilloscope externally (− slope) with the signal from TP411 (DRUM FF). 4. Adjust R465 to position the trigger point 6.5 ±0.5 H from V. sync.
2	Slow Tracking	Monitor	R478	• Slow PB • SP mode	1. Set the tracking control of the FRONT to the center position by simultaneously pressing the + and − tracking buttons. 2. Record a color bar signal in the SP mode, then play back in the Slow mode. 3. Adjust R478 to minimize noise bars in the monitor-TV display.
3	X2 Tracking	Monitor	R414	• X2 PB • SP mode	1. Set the tracking control to the center position. 2. Play back color bar signal in the double speed play back mode. 3. Adjust R414 to minimize noise bars in the monitor TV display.

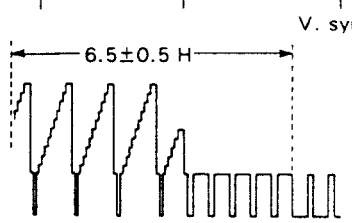


Fig. 2-3-1

2.4 VIDEO CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the MAIN board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Y NR (NC BAL)	TP121	R112	• E-E mode • Color bar	1. Record, then play back a color bar signal and connect an oscilloscope to TP121. 2. As indicated in the figure, adjust R112 for minimum DC step difference.

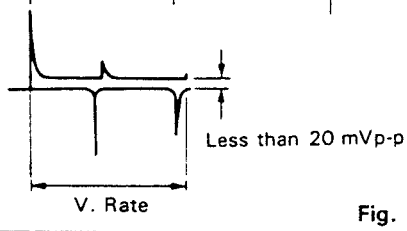
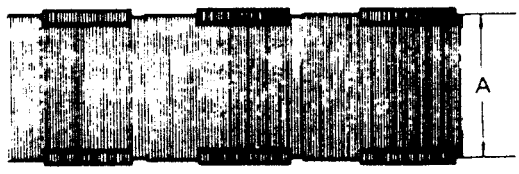
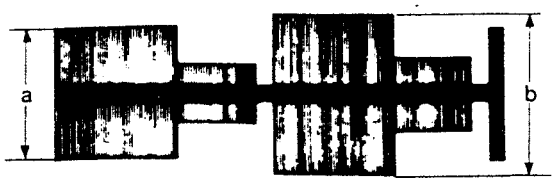
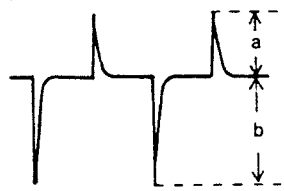


Fig. 2-4-1

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
2	REC FM Level	TP3 (Pre/rec board)	R204	• REC mode • Color bar • LP mode	1. Supply a color bar input signal. 2. Connect an oscilloscope to TP3 of the PRE/REC board. 3. Adjust R204 so that the pedestal level of the vertical blanking component becomes 1.6 Vp-p. **Note:** Connect oscilloscope ground to the shield cover.
	 A = 1.6 Vp-p **Fig. 2-4-2**				
3	SP REC Color Level and Balance	TP304	R321	• PB mode • MH-2 color bar • SP mode --- • REC then PB • Color bar • SP mode	1. Connect an oscilloscope to TP304. Play back a color bar segment of the MH-2 and observe color signal level. 2. Adjust by pressing the + and − tracking buttons of the FRONT panel for maximum level of the color waveform and make a note of the higher color level. 3. Set the tracking control of the FRONT panel to the center position by simultaneously pressing the + and − tracking buttons. 4. Record and play back a color bar signal. If necessary, before recording, adjust R321 so that the higher level channel becomes 85% of the noted level during playback. At this time, confirm that the channel difference is within 3 dB.
	 **Fig. 2-4-3**				
4	SECAM DETECTOR	TP351	L353	• SECAM color bar • E-E	1. Supply a SECAM color bar signal to video IN. 2. Connect a oscilloscope to TP351. 3. Adjust L353 to obtain a:b = 3:4.
	 **Fig. 2-4-4**				

2.5 AUDIO CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the AUDIO board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Audio Bias Level	TP31, TP32	R42	• SOURCE Select: AUX • SP mode • REC mode • No signal	1. Connect a millivoltmeter between TP31 and TP32. 2. Set for REC mode without signal. 3. Adjust R42 for 1.9 mVrms.
2	Audio PB Level	AUDIO OUT	R47 R48	• SOURCE Select: AUX • REC then PB • SP or EP mode • −8 dBs/1 kHz	1. Connect an oscilloscope to AUDIO OUT. 2. Supply an audio signal (−8 dBs/1 kHz) to Peri connector and record together with a video signal, then play back. 3. If level is higher than −4 dBs, remove R47. If lower than −6 dBs, remove R48.

2.6 DIGITAL CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the DIGITAL board.

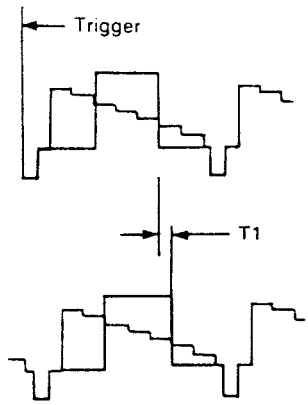
<table>
<tr><th>No.</th><th>Item</th><th>Check Point</th><th>Adjustment Parts</th><th>Signal & Mode</th><th>Description</th></tr>
<tr><td>1</td><td>Clock</td><td>CN2 pin 1 (Y IN)
CN3 pin 3 (Y OUT)
(DIGI ANALOG board)</td><td>R73</td><td>• STROBE mode
• Color bar</td><td>1. Supply a color bar signal to VIDEO IN, connect one channel of a dual trace oscilloscope to CN2 pin 1 of the DIGITAL ANALOG board and the other channel to CN3 pin 3 of the DIGITAL ANALOG board and observe the waveforms. Set the mode and time base of the oscilloscope to ALT mode and 10 μs/div. Trigger the oscilloscope internally (– slope).
2. Align the two waveforms as shown in Fig. 2-6-1 and adjust R73 to set T1 to less than 1 μsec.</td></tr>
<tr><td colspan="5"> 

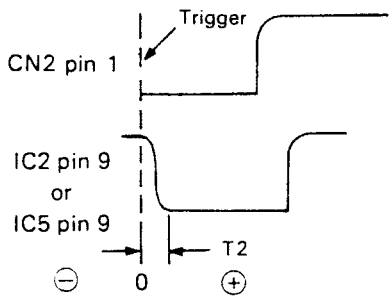
Fig. 2-6-1</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">AFC</td><td rowspan="2"> 

Fig. 2-6-2</td><td>R30</td><td>• E-E
• Color bar</td><td>1. Supply a color bar signal to VIDEO IN, connect one channel of a dual trace oscilloscope to CN2 pin 1 of the DIGITAL ANALOG board and the other channel to IC2 pin 9 and observe the waveforms. Set the oscilloscope to ALT mode and 1 μsec/div. Trigger the oscilloscope internally (– slope).
2. Short IC2 pin 8 to IC2 pin 7 (SWD 5 V). Align the two waveforms (H. SYNC) as shown in Fig. 2-6-2 and adjust R30 to set T2 to less than $0^{-0}_{+0.25}$ μsec.</td></tr>
<tr><td>R66</td><td>• E-E
• Color bar</td><td>3. In the same manner, connect the other channel of the dual trace oscilloscope to IC5 pin 9, and disconnect IC2 pin 8 to IC2 pin 7 (SWD 5 V). Align the two waveforms (H. SYNC) as shown in Fig. 2-6-2 and adjust R66 to set T2 to less than $0^{-0}_{+0.25}$ μsec.</td></tr>
<tr><td>3</td><td>Video LEVEL</td><td>TP110 (Video out)</td><td>R50
R41</td><td>• COLOR BAR
• E-E
• DIGITAL</td><td>1. Supply a color bar signal to VIDEO IN.
2. Connect a oscilloscope to TP110 (video out).
3. Adjust R50, R41 to obtain same video level during E-E and DIGITAL mode.</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">VCXO</td><td>IC4 pin 21</td><td>C69(VCXO)</td><td>• E-E
• No signal</td><td>1. Connect a frequency counter to IC4 pin 21, set for the E-E mode without incoming signal, and short IC4 pin 2 to IC4 pin 18 (SWD5 V). Adjust C69 for 4.433619 MHz±50 Hz.</td></tr>
<tr><td>IC1 pin 18</td><td>C19(VCXO)</td><td></td><td>2. Connect the frequency counter to IC1 pin 18, set for the E-E mode without incoming signal, and short IC1 pin 2 to IC1 pin 1 (SWD5 V). Adjust C19 for 4.433619 MHz±50 Hz.</td></tr>
</table>

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
5	Carrier Balance	VIDEO OUT	R37 (CARR. BAL.) R49 (CARR. BAL.)	• STROBE mode • Color bar	1. Supply a color bar signal to VIDEO IN, connect a vectorscope to VIDEO OUT via a TV-monitor and observe the pairs of color dots on the vectorscope. 2. Set for the STROBE mode, adjust R37 and R49 to observe the center of dot at the center of the display as shown in Fig. 2-6-3.
			R37 (CARR. BAL.) R49 (CARR. BAL.)	• STROBE mode • Color bar	• **Alternate method** 1. Supply a color bar signal to VIDEO IN, connect one channel of a dual trase oscilloscope to Q3 (base) and the other channel to Q4 (base). Set the mode of the oscilloscope to X-Y mode. 2. In the E-E mode, observe the pairs of color dots on the oscilloscope and TV-monitor color bar. 3. Set for the STROBE mode, alternately adjust R37 and R49 to align the pairs of color dots on the oscilloscope and TV-monitor color bar with that obtained in E-E mode. **Note:** Repeat the above steps (2 and 3) several times.
6	Burst Level	VIDEO OUT	R48 (BURST LEVEL)	• STROBE mode • Color bar	1. Supply a color bar signal to VIDEO IN, connect an oscilloscope to VIDEO OUT and observe the waveform on the oscilloscope. 2. Set for the STROBE mode, adjust R48 so that the burst level becomes 0.24 Vp-p.
7	Color Difference Balance, Color Level and Phase	VIDEO OUT	R20 (LEVEL) R23 (PHASE)	• STROBE mode • Color bar	1. Supply a color bar signal to VIDEO IN, connect a vectorscope to VIDEO OUT via a TV-monitor and observe the waveform on the vectorscope. 2. In the E-E mode, set the vectorscope for 75% color bar saturation as shown in Fig. 2-6-4. Set for the STROBE mode and adjust R20 and R23 to align the vectorscope waveform (Phase, Level to less than ±10%, 20%) with that obtained in the E-E mode.

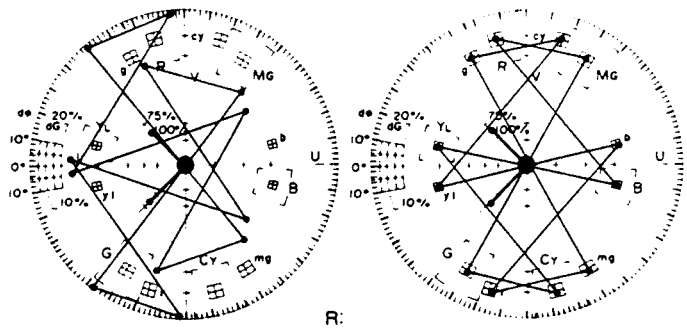


Fig. 2-6-3

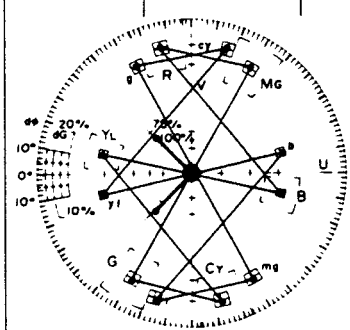
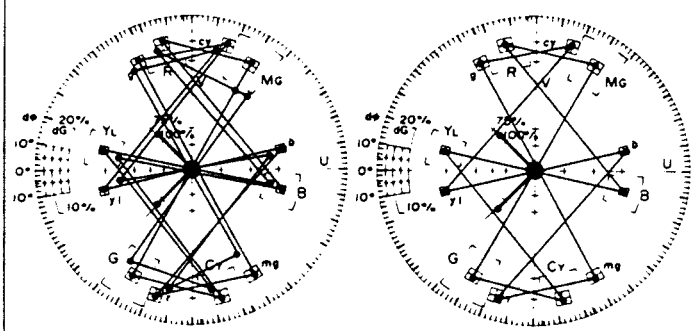


Fig. 2-6-4

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
			R20 (LEVEL) R23 (PHASE)		• **Alternate method** 1. Supply a color bar signal to VIDEO IN, connect one channel of a dual trace oscilloscope to LPF1 pin 3 and the other channel to LPF2 pin 3. Set the mode of the oscilloscope to X-Y mode. 2. In the E-E mode, observe the pairs of color dots on the oscilloscope and TV-monitor color bar. 3. Set for the STROBE mode, alternately adjust R20 and R23 to align the pairs of color dots on the oscilloscope and TV-monitor color bar with that obtained in the E-E mode. **Note:** Repeat the above steps (2 and 3) several times.
8	Picture In Picture Phase (PIP)	VIDEO OUT	R59	• P IN P mode • Color bar • PB • MH-2 color bar	1. Supply a color bar signal to VIDEO IN, connect a vectorscope to VIDEO OUT via a TV-monitor and set the vectorscope for 75% color bar saturation as shown in Fig. 2-6-4. Play back the color bar segment of MH-2 alignment tape. 2. Set for the picture in picture mode, adjust R59 to align picture in picture phase as shown in Fig. 2-6-5.
					• **Alternate method** 1. Supply a color bar signal to VIDEO IN, observe the TV-monitor. 2. Play back the color bar segment of MH-2 alignment tape. Set for the picture in picture (P-IN-P) mode, adjust R59 to align phase of inserted picture with main picture.

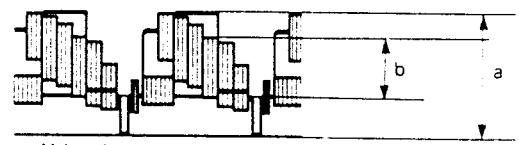


Incorrect Correct

Fig. 2-6-5

2.7 TUNER/IF CIRCUIT

Note: Unless otherwise specified, all test points and adjustment parts are located on the IF board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	VCO	MONITOR	T1 (LLD)	• TV broadcast • Tuner mode	1. Receive a color broadcast. 2. Adjust T1 to obtain a fine picture on the monitor.
2	AFC	MAIN board TP110 (VIDEO OUT) or IC1-18	T2 (AFC)	• TV broadcast • Tuner mode	1. Receive a color broadcast. 2. Set AFC SW to OFF, perform fine tuning. Precisely read the burst level of IC1-18. Make a note of the burst level. 3. Them set AFC SW to ON, adjust T2 (AFC) so that the burst level of IC1-18 becomes equal to the noted level.
3	Color Level	MAIN board TP110 (VIDEO OUT)	R43 (COLOR LEVEL)	• TV broadcast • Tuner mode	1. Supply a color bar signal from a TV channel signal generator and select the channel corresponding to the generator. 2. With AFC SW ON, adjust R43 to produce signal waveform as shown in Fig. 2-7-1.  Y level = 1 Magneta level = 0.48 a : b = 1 : 0.48 **Fig. 2-7-1** Alternate method 1. Receive a color broadcast. 2. With AFC SW ON, adjust R43 so that the burst level becomes 2/3 of the sync level.
4	RF AGC	MONITOR	R18 (AGC)	• TV broadcast • Tuner mode	**Note:** Adjust R18 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields. 1. Adjust R18 to minimize noise or steaks on the TV screen. 2. Check for absence of abnormality on all channels.

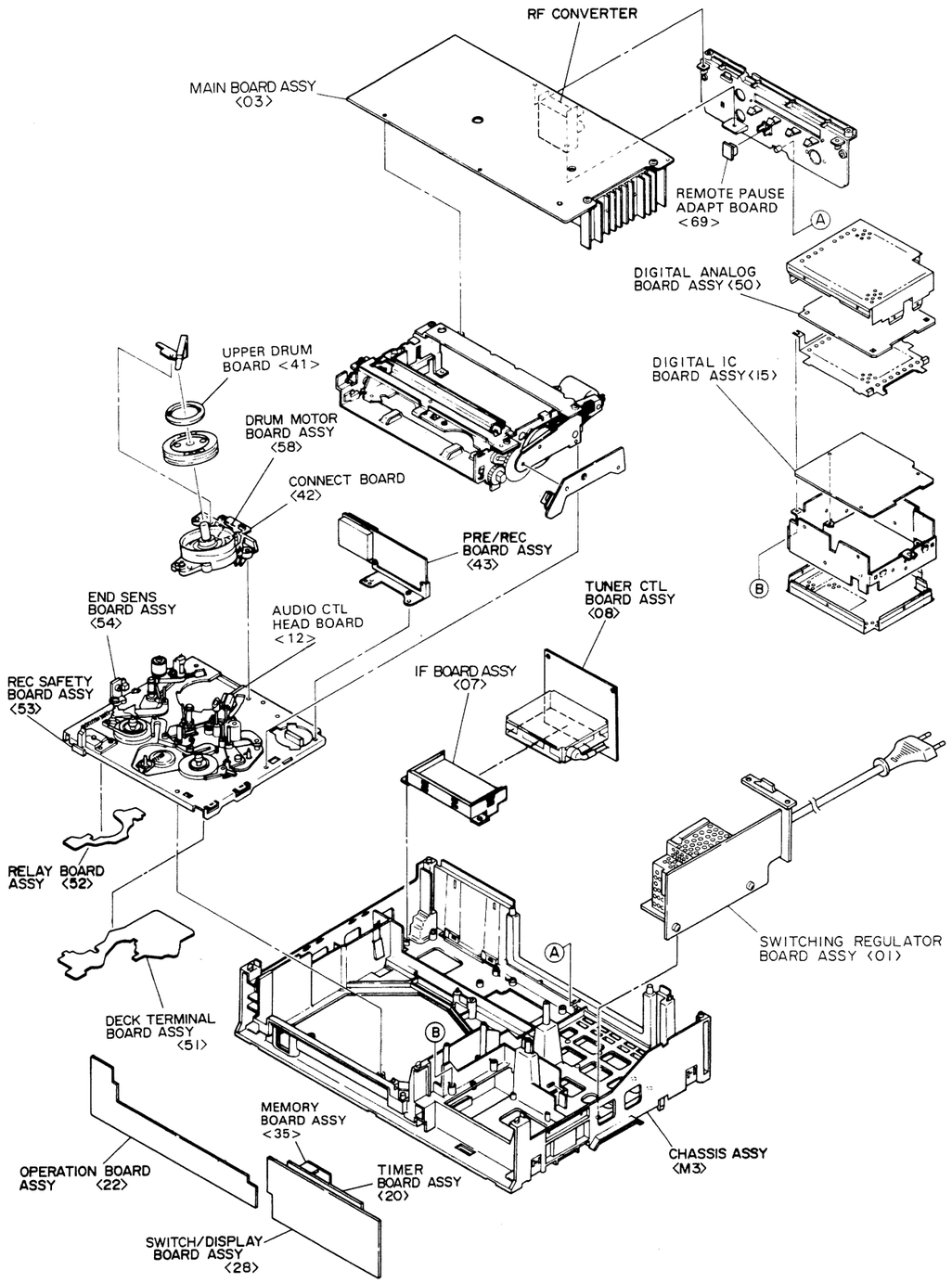
2.8 POWER SUPPLY CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the power supply board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Output Voltage	CN-1 1 Pin	R9	POWER ON	1. Connect digital voltmeter between CN-1 pin 1 and GND. 2. Adjust R9 for 15.3 VDC.

SECTION 3
CHARTS AND DIAGRAMS

3.1 CIRCUIT BOARD LOCATIONS

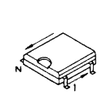
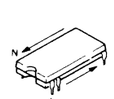
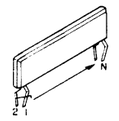
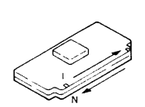
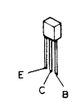
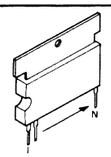
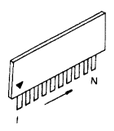
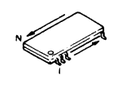
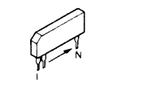
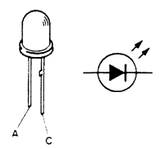
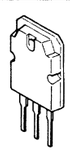
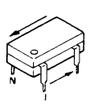
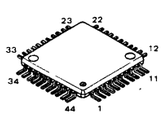
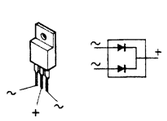
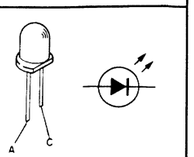
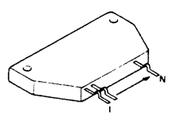
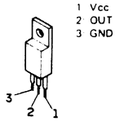
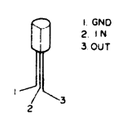
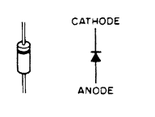
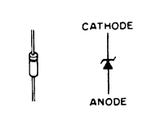


3.2 MAIN TYPES OF ACTIVE AND PACKAGE CIRCUITS

INTEGRATED CIRCUIT	
NAME	L
BA226F	1A
BA6222	2A
BA7106LS	2B
BX6385	2B
HD49722NT	3B
LA7295	1C
MC7805ACT	4B
MSC7112-01SS	1B
MSM16811RS	3B
M50445-398SP	1B
M50253P	2C
M5747-623FP	3C
M50938-617SP	1B
PB20277A	1D
SDA5642	1B
STK5490	4A
STR10006	3A
S-8053HNB	4C
TA8405S	2D
TC74HC02F	1A

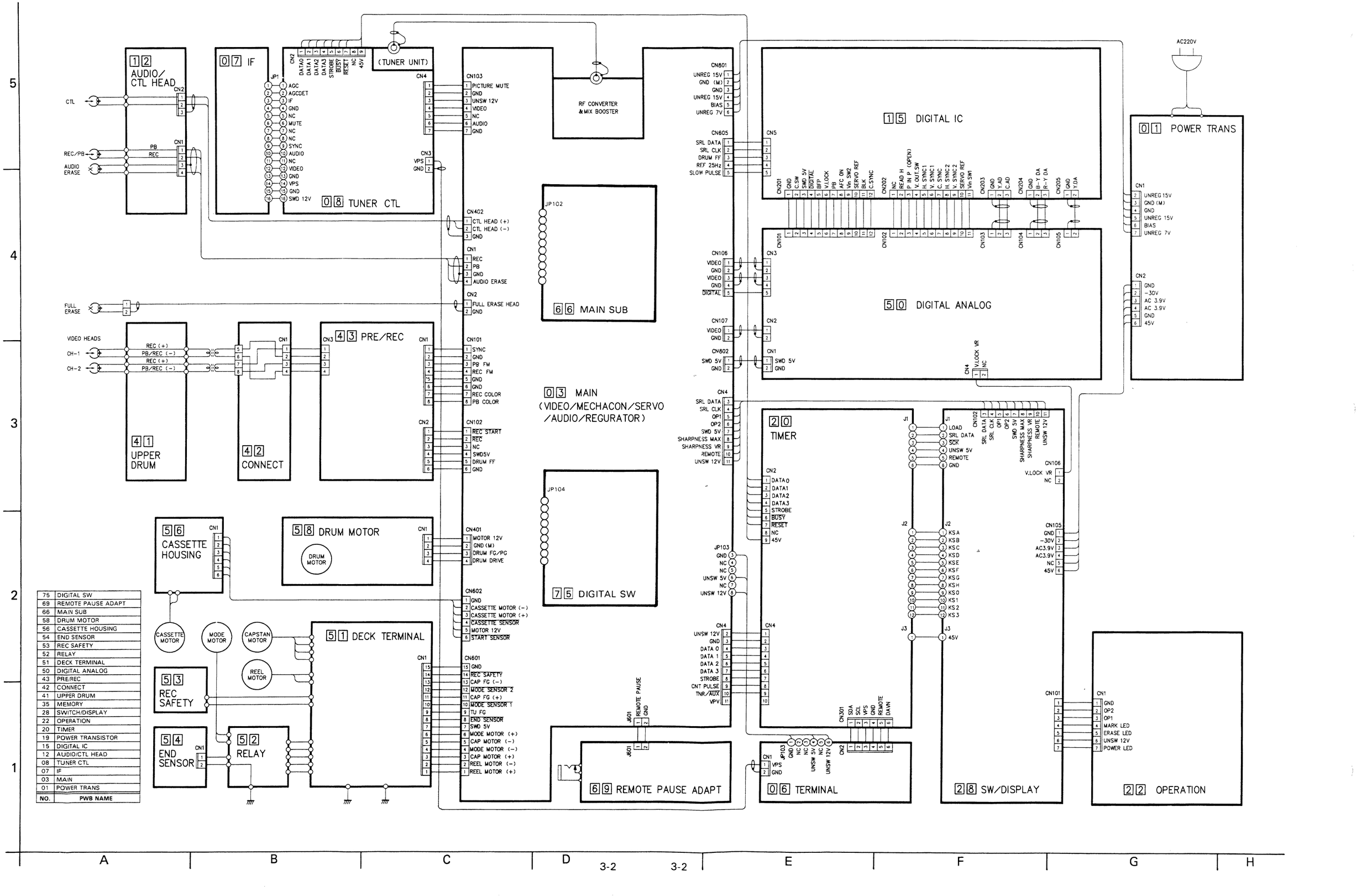
TRANSISTOR	
NAME	L
DTC144TS	1E
2SK658	1E

DIODE	
NAME	L
GL-3EG43	2E
HZS39EB4TJ	4E
SLR-55DC3F	3E
SLR-55MC3F	3E
SLR-55VC3F	3E
UZ5.1BSB	4E
10E6	4D

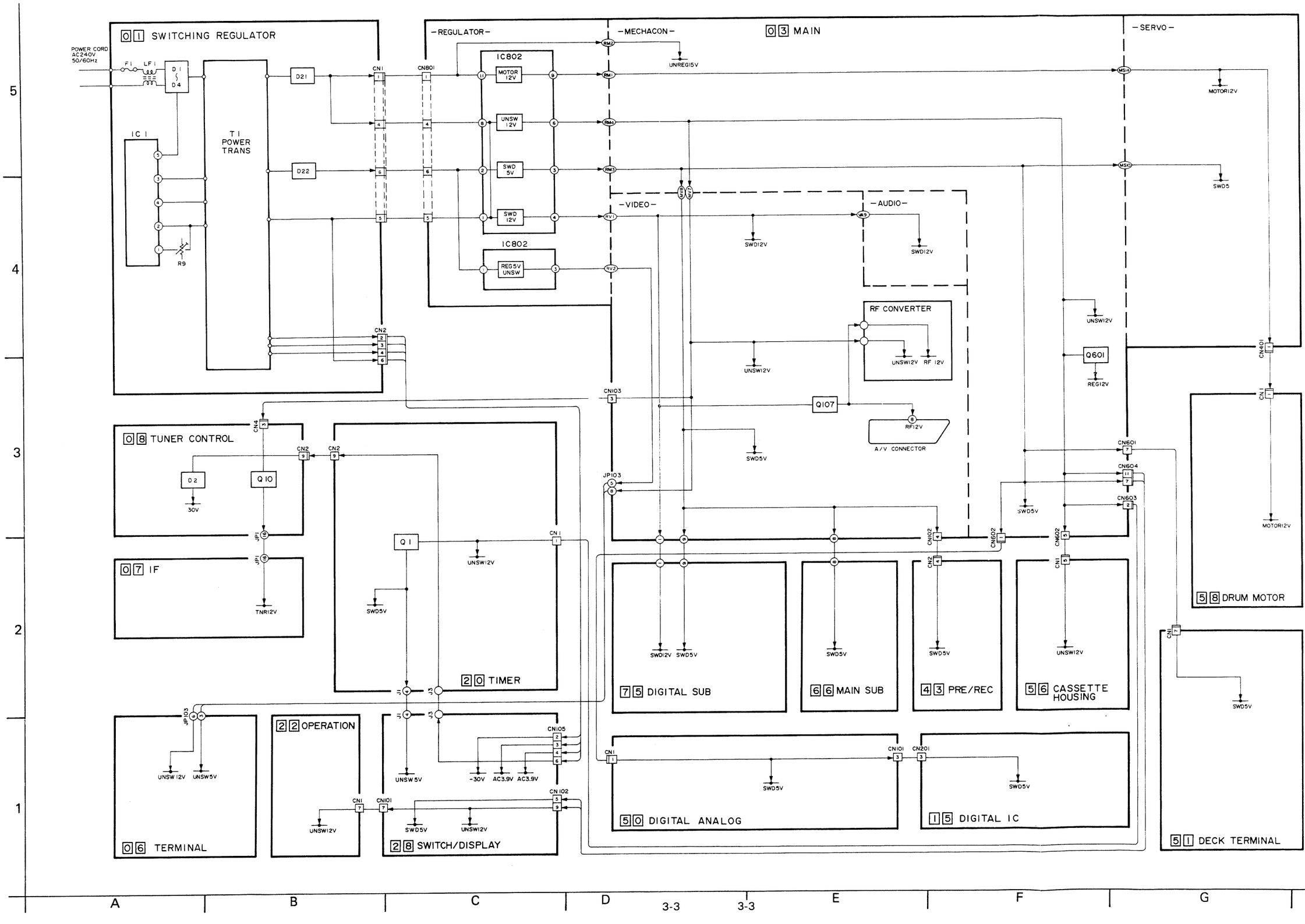
	A	B	C	D	E
1					
2					
3					
4					

3-1

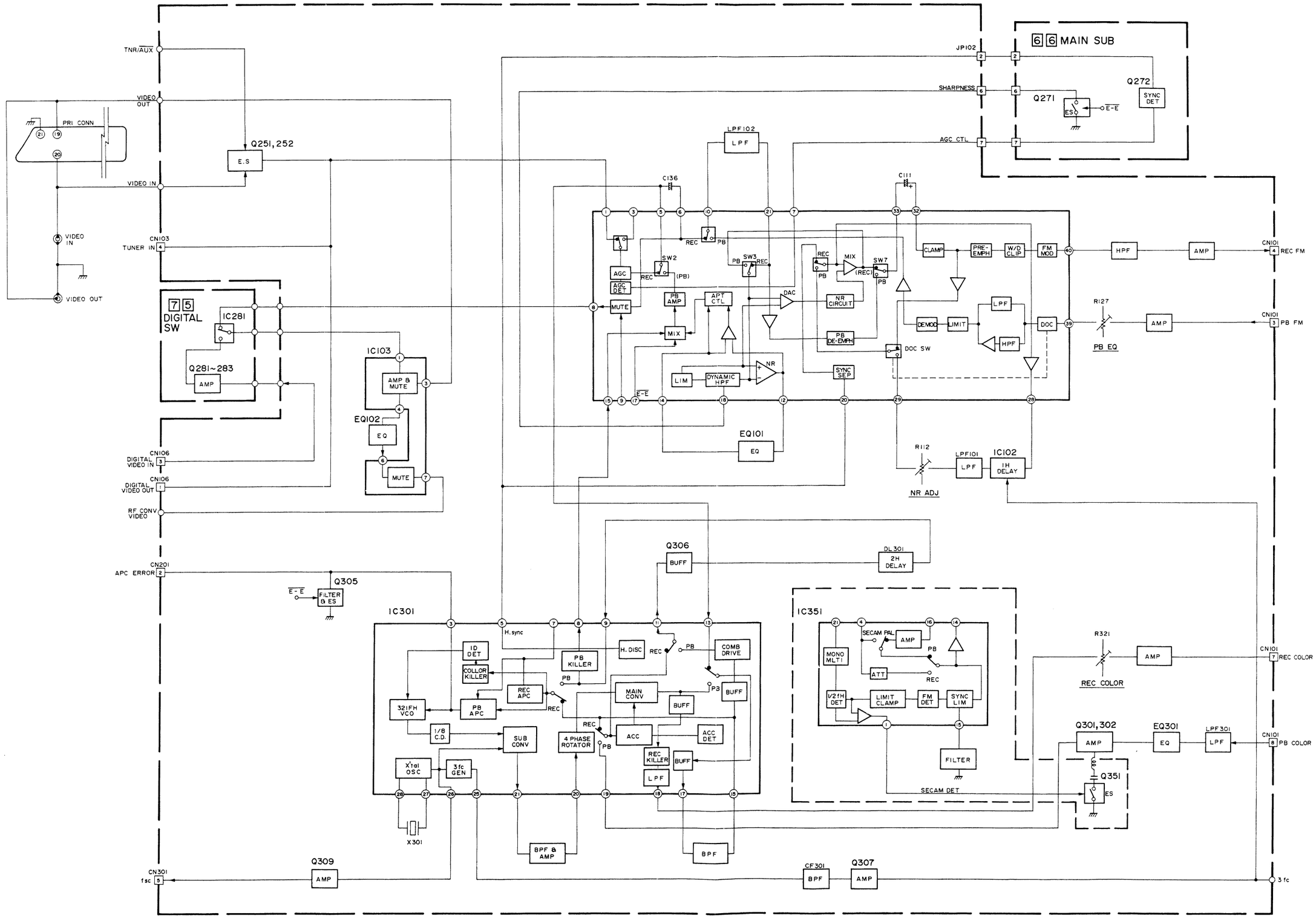
3.3 BOARD INTERCONNECTION DIAGRAM


12 AUDIO/CTL HEAD
07 IF
(TUNER UNIT)
08 TUNER CTL
RF CONVERTER & MIX BOOSTER
66 MAIN SUB
03 MAIN (VIDEO/MECHACON/SERVO /AUDIO/REGURATOR)
15 DIGITAL IC
50 DIGITAL ANALOG
01 POWER TRANS
AC220V
20 TIMER
43 PRE/REC
41 UPPER DRUM
42 CONNECT
56 CASSETTE HOUSING
58 DRUM MOTOR
51 DECK TERMINAL
53 REC SAFETY
54 END SENSOR
52 RELAY
75 DIGITAL SW
69 REMOTE PAUSE ADAPT
06 TERMINAL
28 SW/DISPLAY
22 OPERATION
CASSETTE MOTOR
MODE MOTOR
CAPSTAN MOTOR
REEL MOTOR
VIDEO HEADS
CTL
REC/PB
AUDIO ERASE
FULL ERASE
CN2 DATA0 DATA1 DATA2 DATA3 STROBE BUSY RESET N.C 45V
JP1 AGC AGCDET IF GND NC MUTE NC NC SYNC AUDIO NC VIDEO GND VPS GND SWD 12V
CN4 PICTURE MUTE GND UNSW 12V VIDEO NC AUDIO GND
CN3 VPS GND
CN402 CTL HEAD (+) CTL HEAD (-) GND
CN1 REC PB GND AUDIO ERASE
CN2 FULL ERASE HEAD GND
CN101 SYNC GND PB FM REC FM GND GND REC COLOR PB COLOR
CN102 REC START REC NC SWD5V DRUM FF GND
CN401 MOTOR 12V GND (M) DRUM FG/PG DRUM DRIVE
CN602 GND CASSETTE MOTOR (-) CASSETTE MOTOR (+) CASSETTE SENSOR MOTOR 12V START SENSOR
CN601 GND REC SAFETY CAP FG (-) MODE SENSOR 2 CAP FG (+) MODE SENSOR 1 TU FG END SENSOR SWD 5V MODE MOTOR (+) CAP MOTOR (-) MODE MOTOR (-) CAP MOTOR (+) REEL MOTOR (-) REEL MOTOR (+)
CN801 UNREG 15V GND (M) GND UNREG 15V BIAS UNREG 7V
CN605 SRL DATA SRL CLK DRUM FF REF 25Hz SLOW PULSE
CN106 VIDEO GND VIDEO GND DIGITAL
CN107 VIDEO GND
CN802 SWD 5V GND
CN4 SRL DATA SRL CLK OP1 OP2 SWD 5V SHARPNESS MAX SHARPNESS VR REMOTE UNSW 12V
JP103 GND NC NC UNSW 5V NC UNSW 12V
JP102
JP104
J601 REMOTE PAUSE GND
J501
CN1 UNREG 15V GND (M) GND UNREG 15V BIAS UNREG 7V
CN2 GND -30V AC 3.9V AC 3.9V GND 45V
CN101 SDA SCL VFS GND REMOTE DAWN
CN102 LOAD SRL DATA SCK UNSW 5V REMOTE GND
CN106 V.LOCK VR NC
CN105 GND -30V AC3.9V AC3.9V NC 45V
CN101 GND OP2 OP1 MARK LED ERASE LED UNSW 12V POWER LED
CN201 GND C.SW SWD 5V DIGITAL SFP V.LOCK PB AFC ON AFC SW2 SERVO REF BLK C.SYNC
CN202 NC READ H P IN P (OPEN) V. OUT SW H. SYNC1 V. SYNC1 C. SYNC H. SYNC2 V. SYNC2 SERVO REF Vin SW1
CN203 GND Y.AD C.AD
CN204 GND B-Y DA R-Y DA
CN205 GND Y.DA
CN101 CN102 CN103 CN104 CN105
CN4 V.LOCK VR NC
CN2 DATA 0 DATA1 DATA2 DATA3 STROBE BUSY RESET NC 45V
J1 J2 J3
KS A KS B KS C KS D KS E KS F KS G KS H KS 0 KS 1 KS 2 KS 3
45V
CN4 UNSW 12V GND DATA 0 DATA 1 DATA 2 DATA 3 STROBE CNT PULSE TNR/AUX VPS
CN1 VPS GND
CN1 REC (+) PB/REC (-) REC (+) PB/REC (-)
CH-1
CH-2
CN3
CN1
CN2
CN1
CN1
CN1

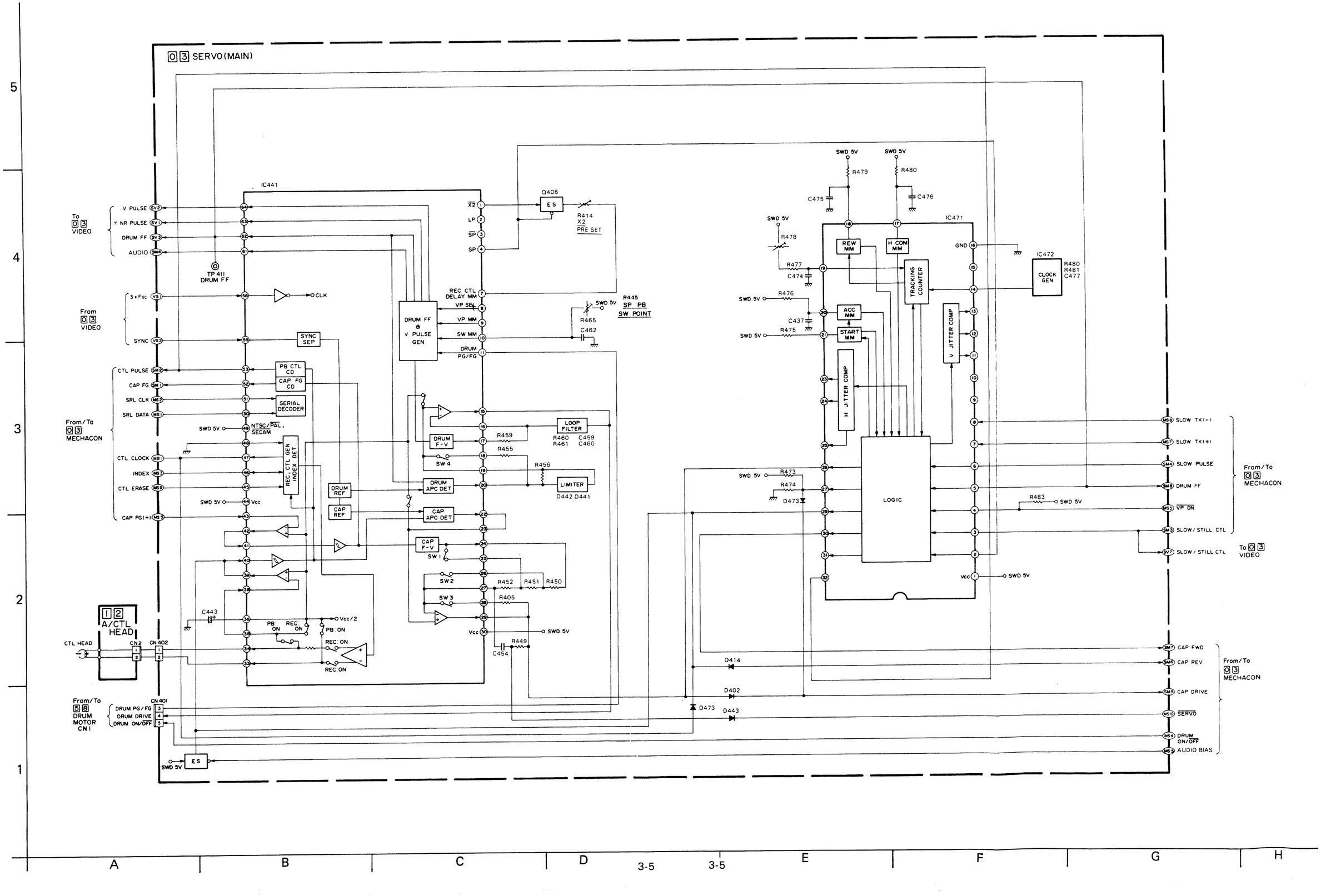
3.4 POWER SYSTEM BLOCK DIAGRAM



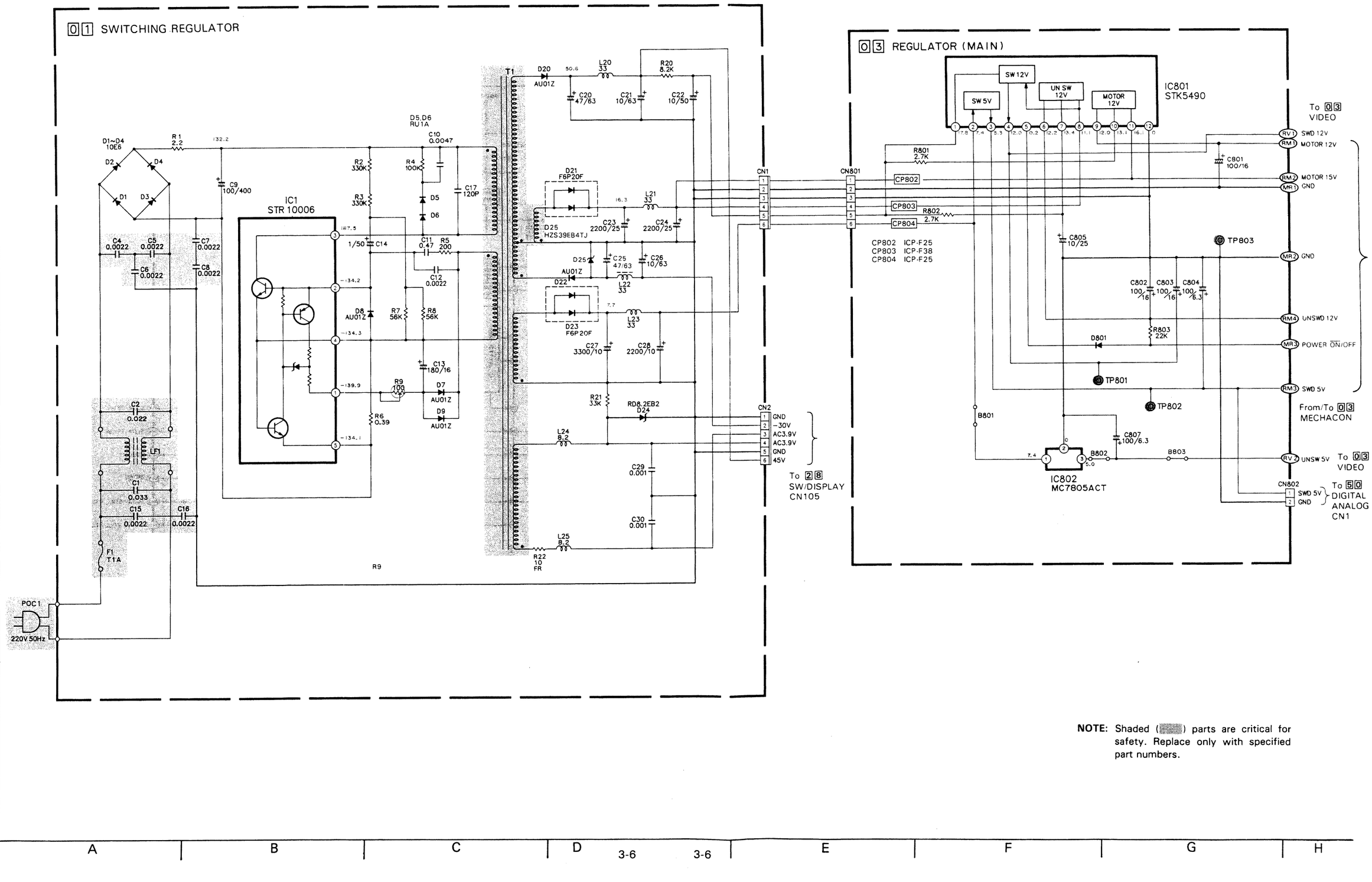
3.5 VIDEO BLOCK DIAGRAM



3.6 SERVO BLOCK DIAGRAM

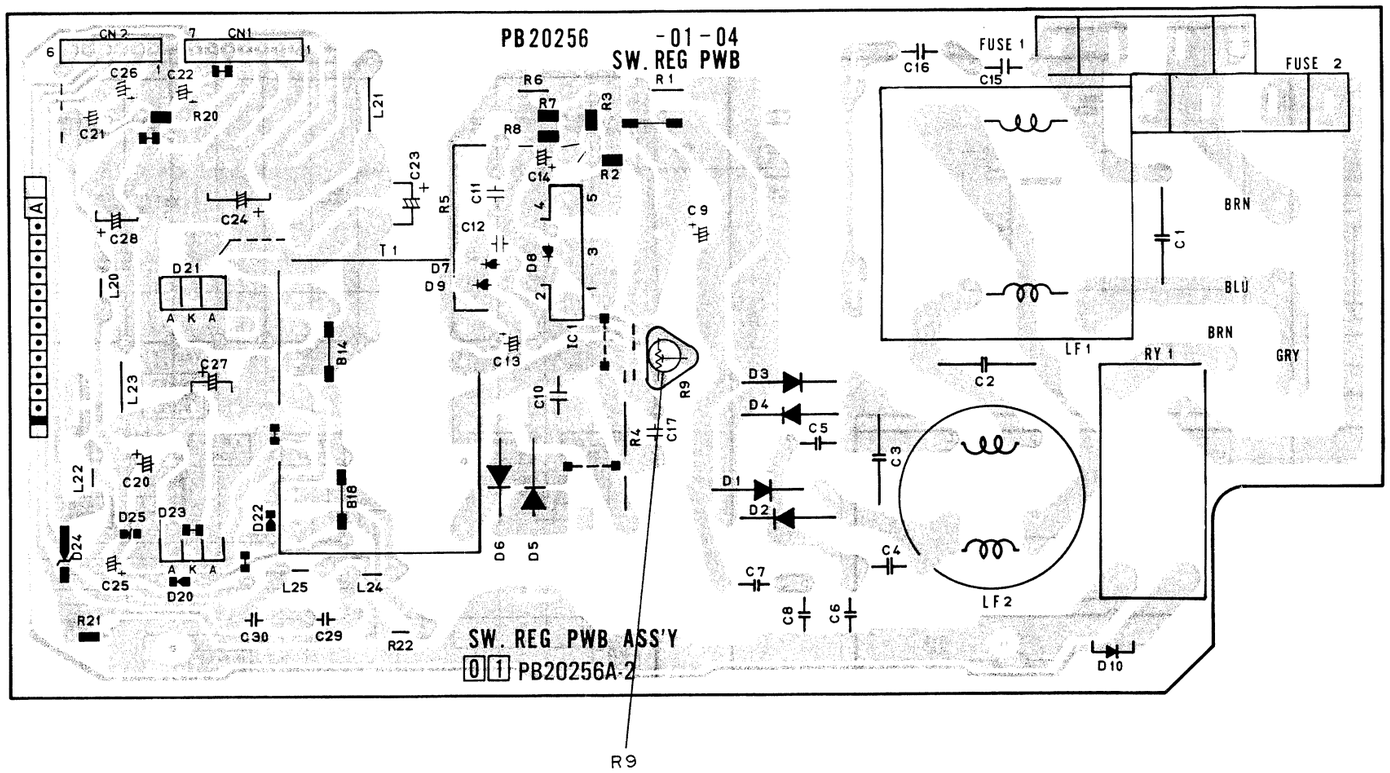


3.7 POWER SUPPLY SCHEMATIC DIAGRAMS



NOTE: Shaded (▒) parts are critical for safety. Replace only with specified part numbers.

3.8 SWITCHING REGULATOR CIRCUIT BOARD

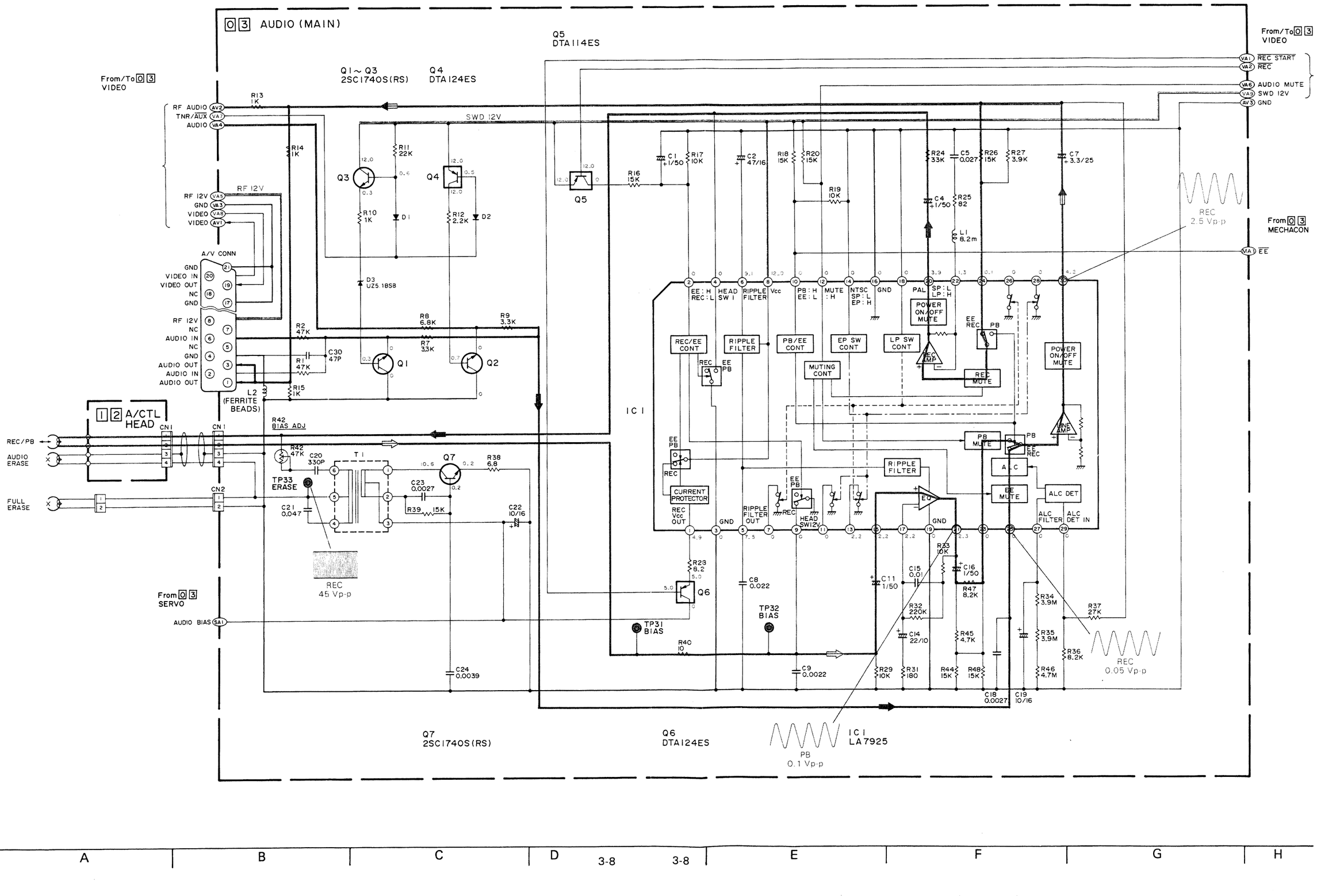


A B C D E F G H

1 2 3 4 5

3-7 3-7

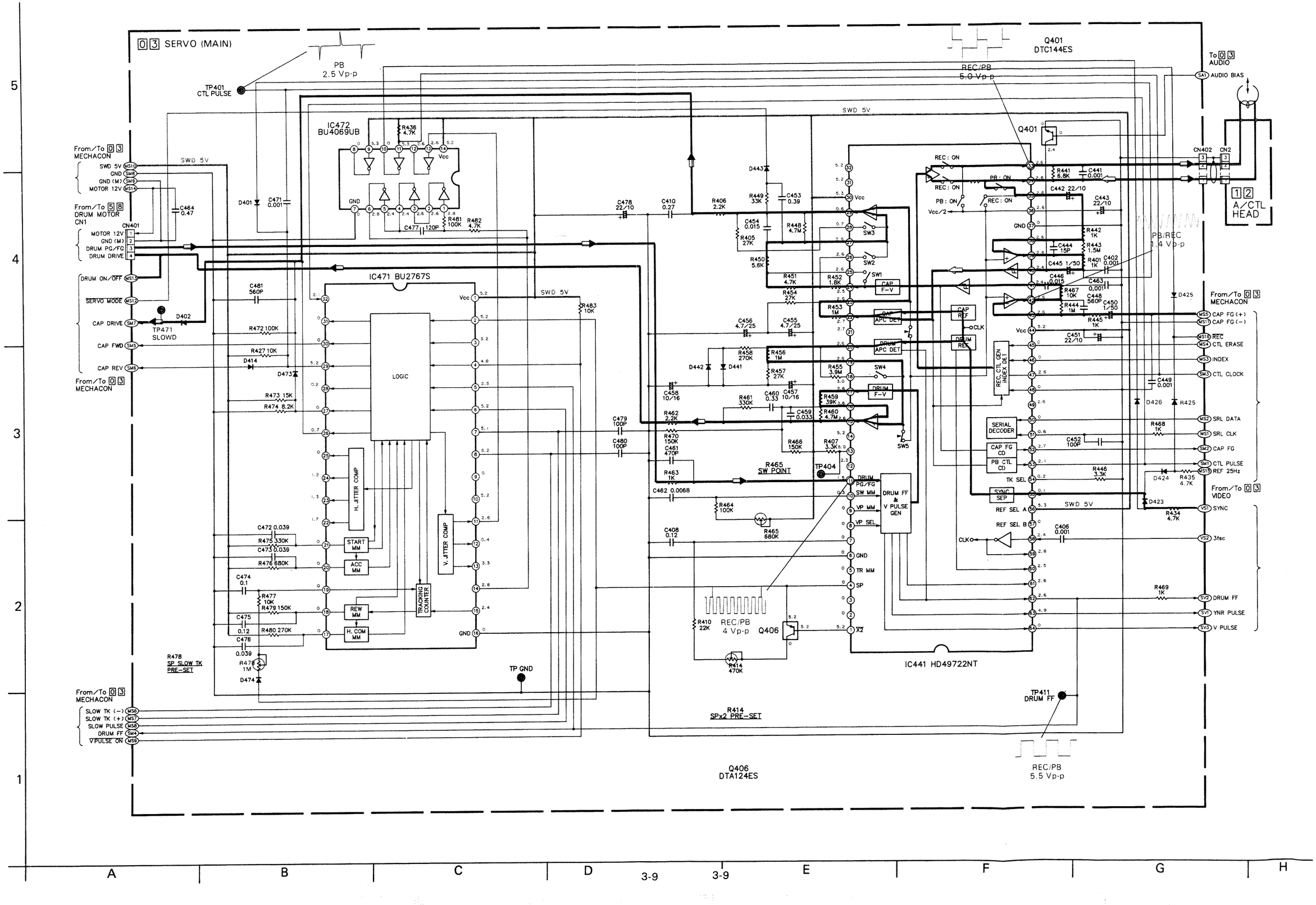
3.9 AUDIO SCHEMATIC DIAGRAM



A B C D E F G H

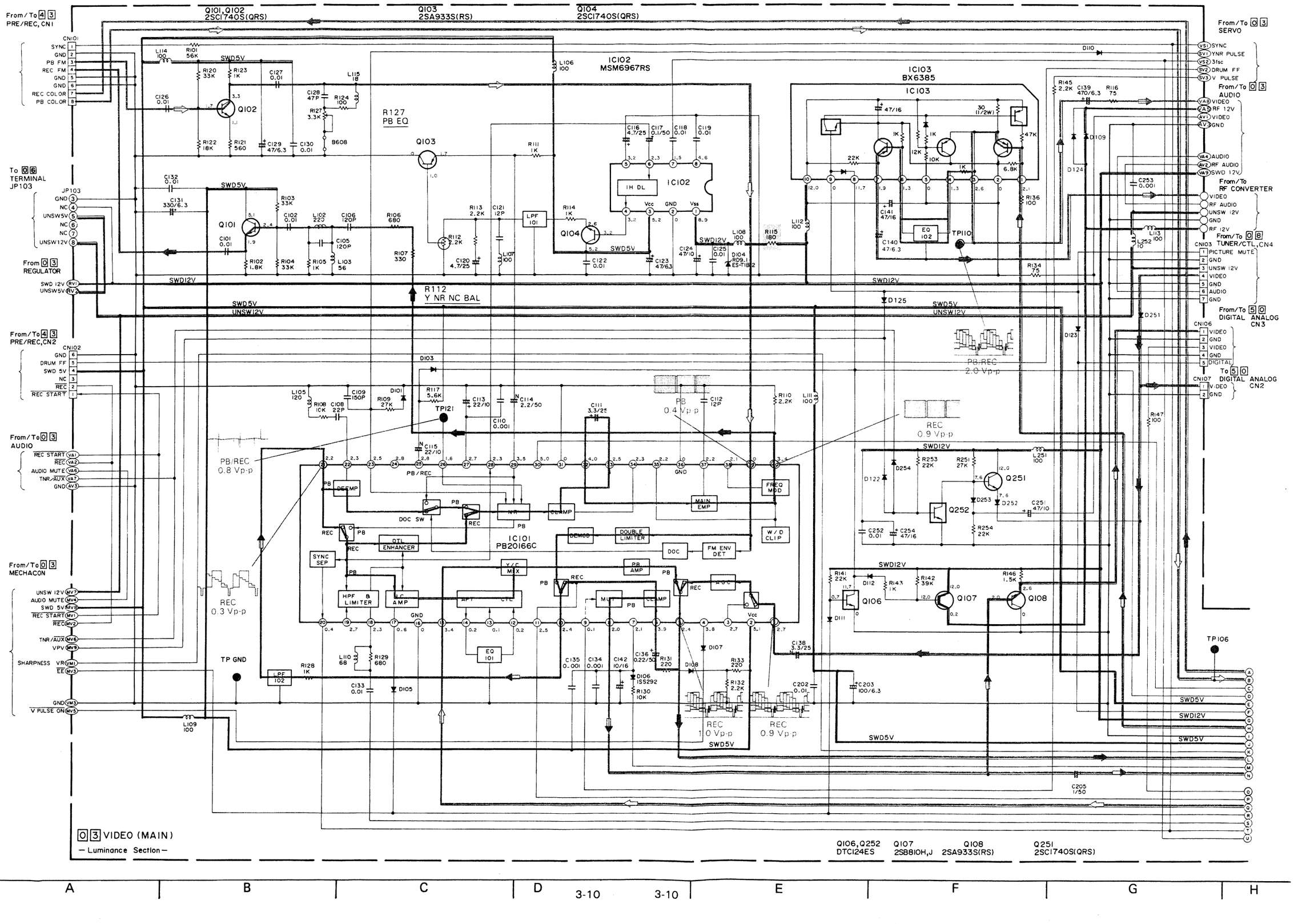
3-8 3-8

3.10 SERVO SCHEMATIC DIAGRAM



3.11 VIDEO & TERMINAL SCHEMATIC DIAGRAMS

NOTE: Shaded (▒) parts are critical for safety. Replace only with specified part numbers.



03 VIDEO (MAIN) — Color Section —

Q305,Q351 DTC124ES | Q306 2SA933S(RS) | IC301 PB20227A | Q309 2SA933S(RS) | Q308 2SC1740S(RS)

SWD5V

To DIGITAL SUB CN301 4.43MHz GND

Q301, Q302, Q303, Q307 2SC1740S(RS)

REC 1.0 Vp-p

E-E/REC 0.2 Vp-p

PB 0.05 Vp-p

REC 0.03 Vp-p

TP205

TP304

R321 REC COLOR LEVEL

REC/PB 4.5 Vp-p

TP351

IC301

IC351 BA7106LS

SWD5V

SWD12V

SWD5V

06 TERMINAL

VPV/VPS ADAPTER

From 08 TNR CTL CN3 — VPS, GND

From 03 VIDEO — GND, NC, UNSW 5V, NC, NC, UNSW 12V

From/To 20 TIMER CN301 — SDA, SCL, VPS, GND, REMOTE, DAVN

NOTE: Shaded (▒) parts are critical for safety. Replace only with specified part numbers.

66 MAIN SUB

Q271 2SC1740S(QRS)

Q272,Q273 DTC144ES

Q271 Q272 Q273

75 DIGITAL SW

IC281 BA7021

Q281 2SC1740S (RS)

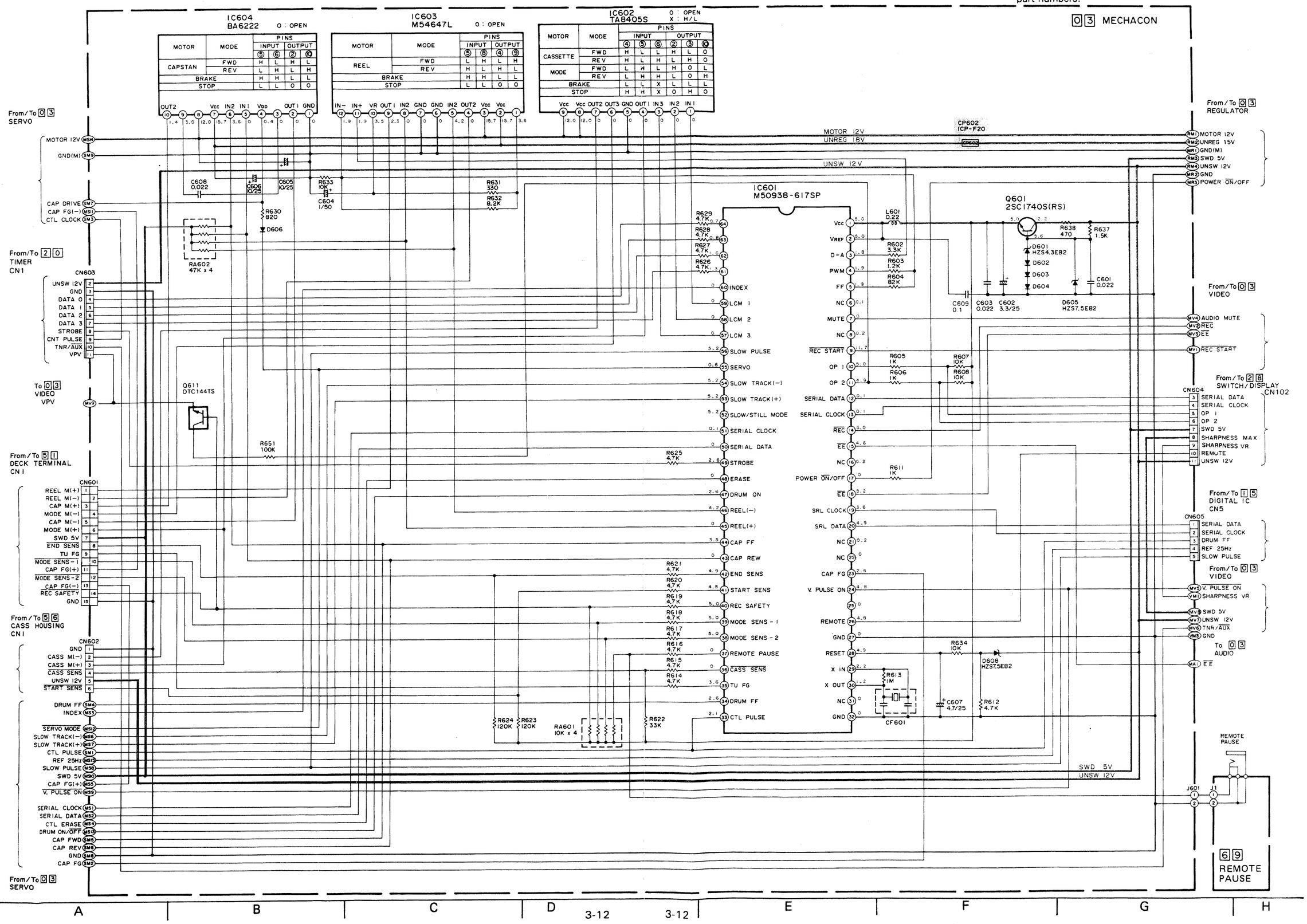
Q282,Q283 2SA933S (RS)

Q281 Q282 Q283

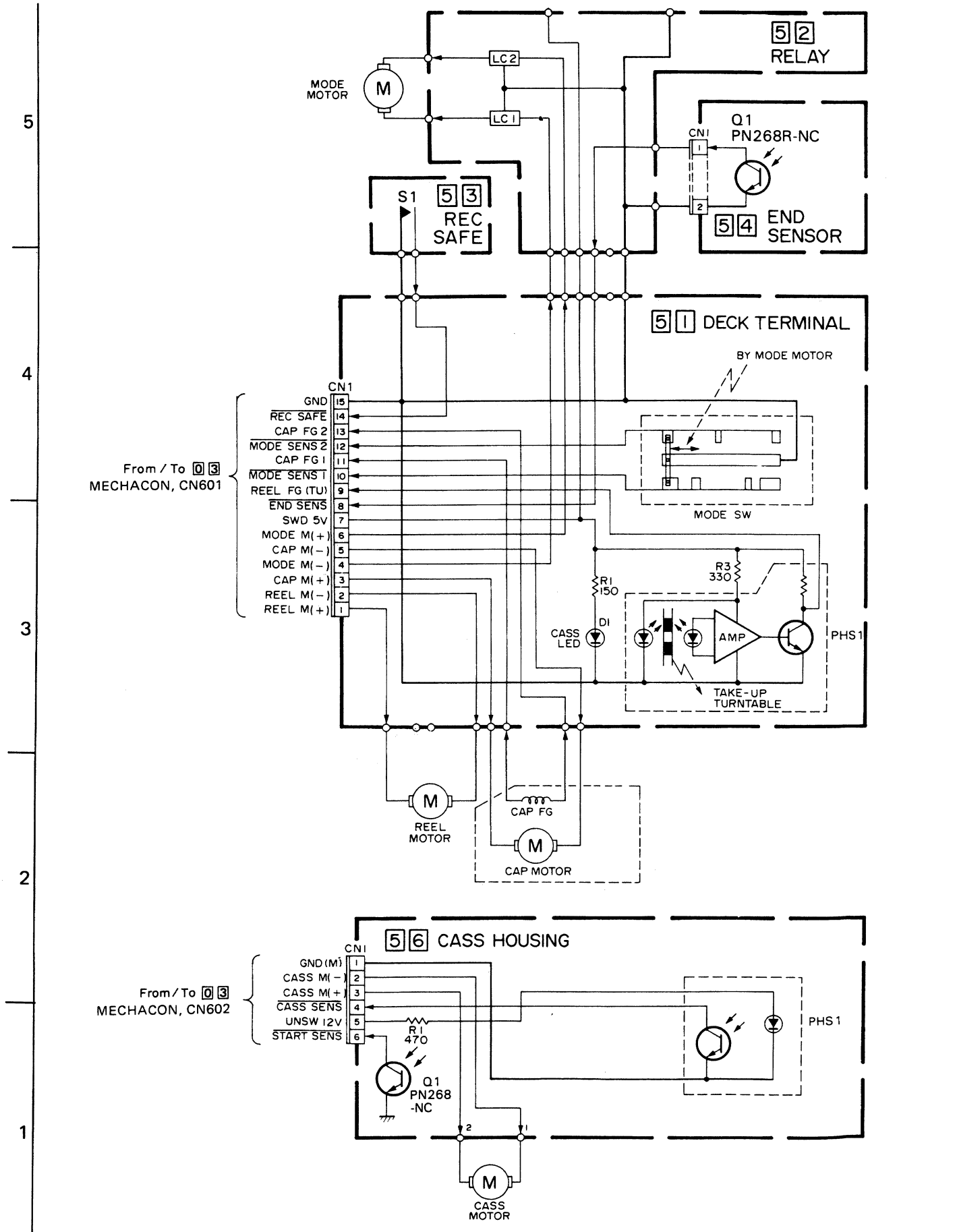
I J K L 3-11 3-11 M N O P

3.12 MECHANISM CONTROL AND REMOTE PAUSE ADAPT SCHEMATIC DIAGRAMS

NOTE: Shaded (▒) parts are critical for safety. Replace only with specified part numbers.

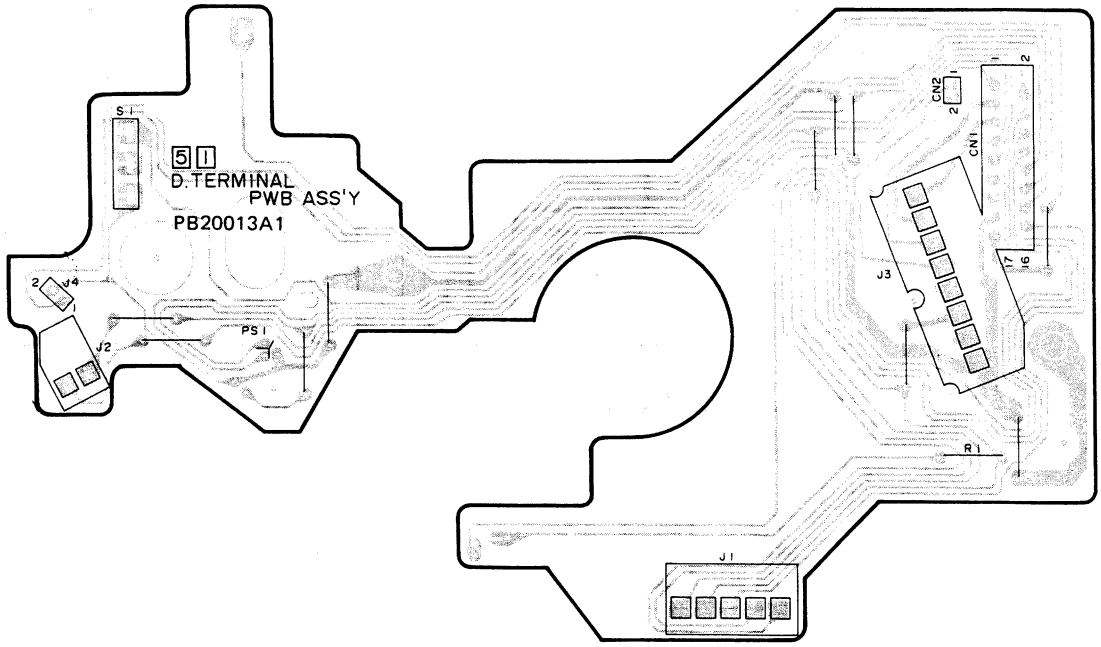


3.13 DECK TERMINAL SCHEMATIC DIAGRAMS

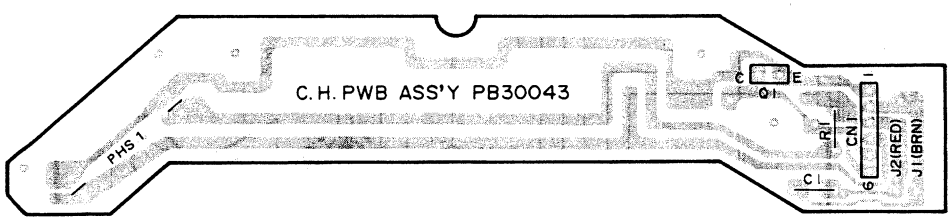


3.14 DECK TERMINAL CIRCUIT BOARDS

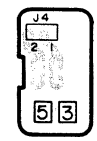
—DECK TERMINAL—



—CASSETTE HOUSING—

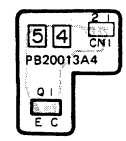


—REC SAFETY—



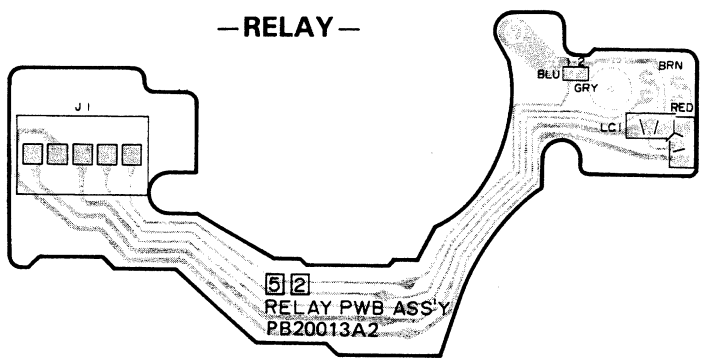
PB20013A3

—END SENSOR—

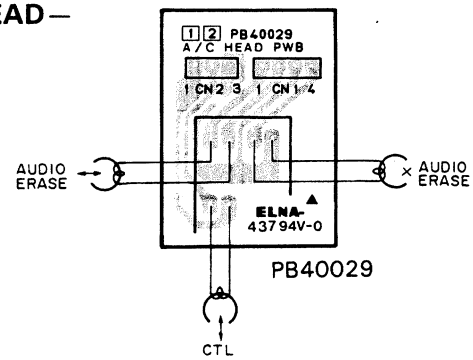


PB20013A4

—RELAY—



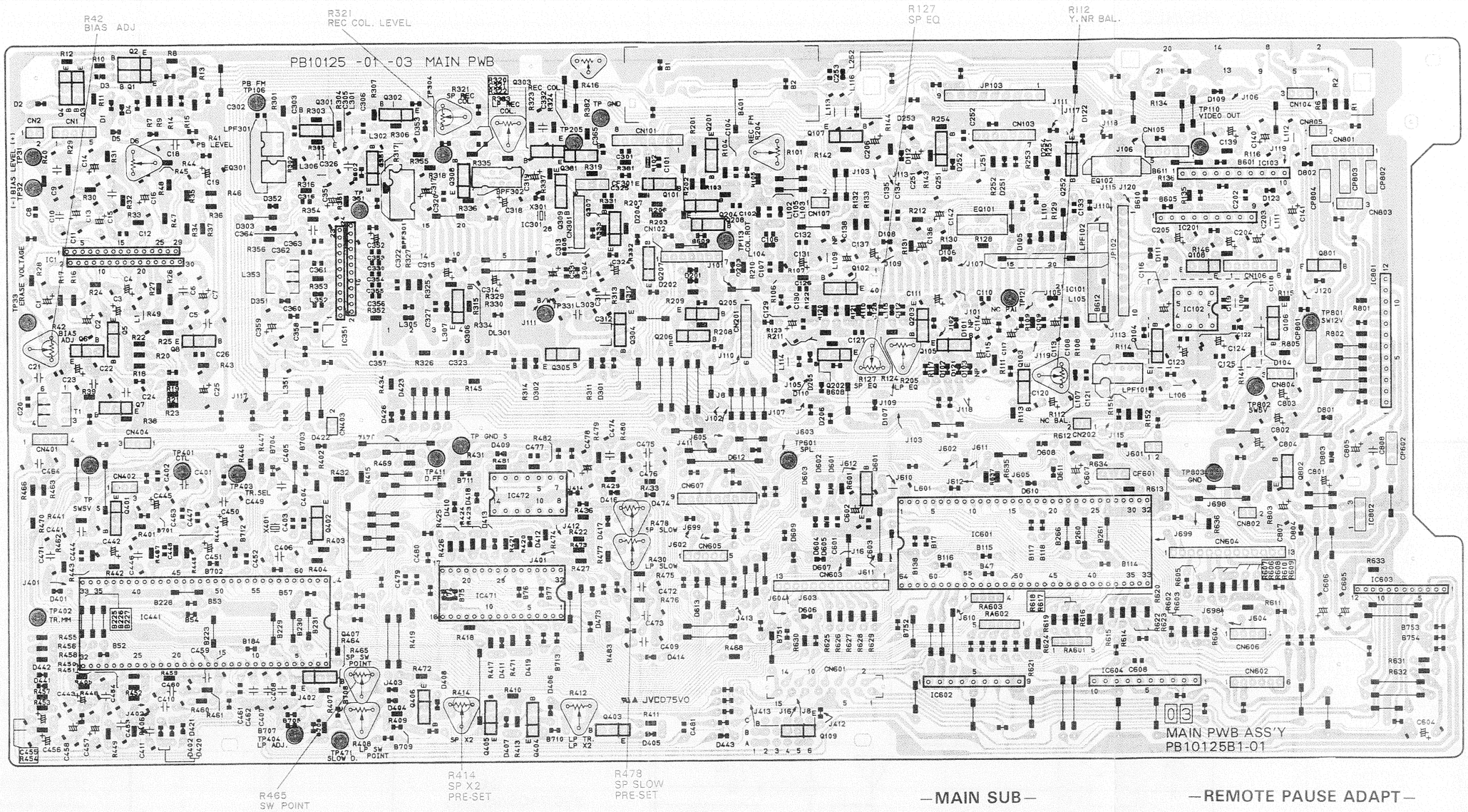
—AUDIO/CTL HEAD—



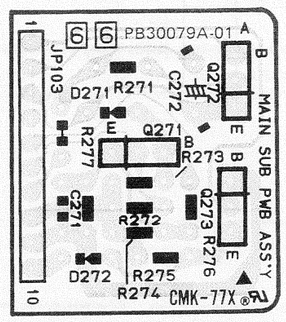
PB40029

3.15 MAIN, MAIN SUB AND REMOTE PAUSE ADAPT CIRCUIT BOARDS

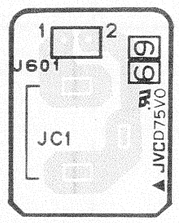
—MAIN—



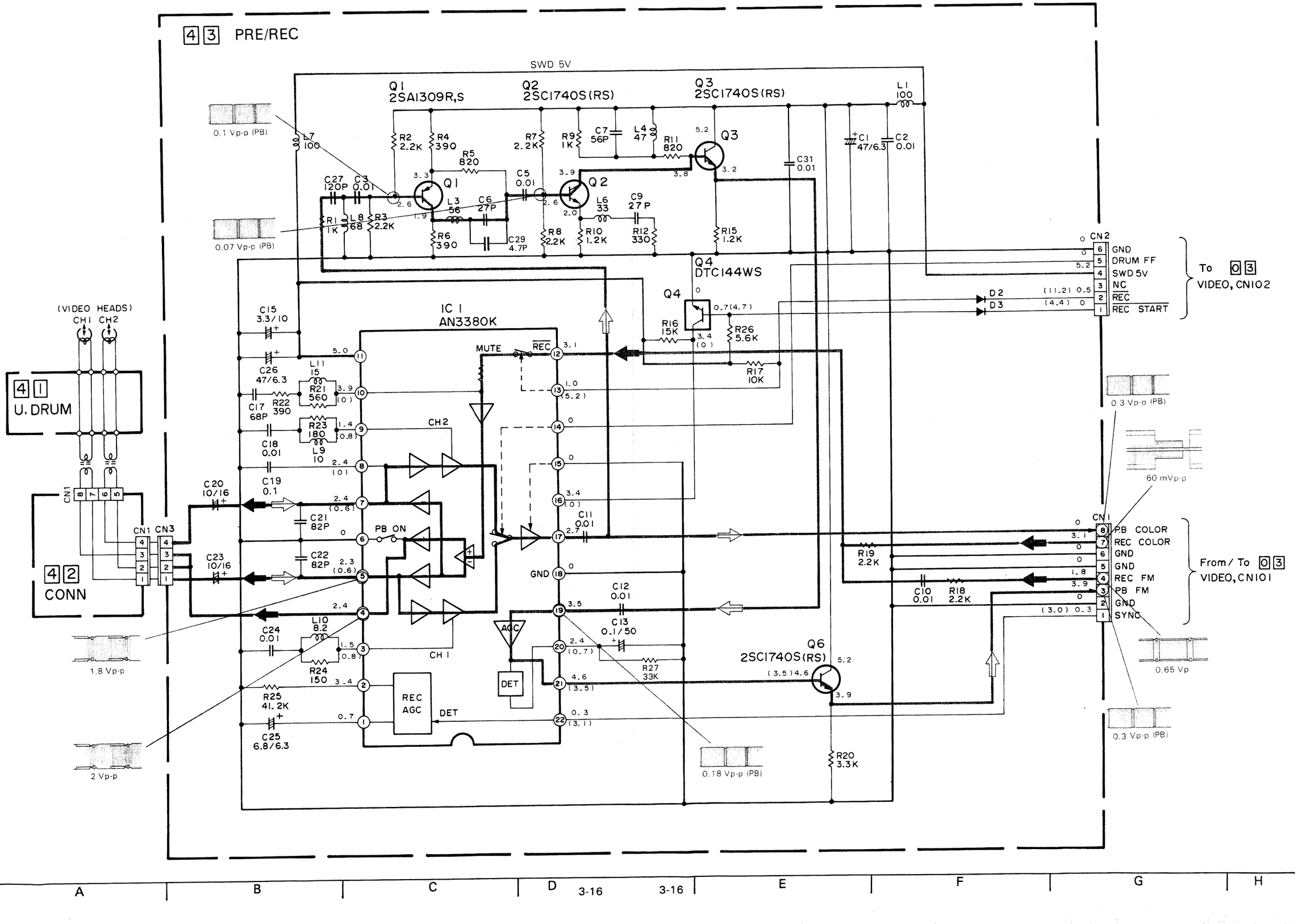
—MAIN SUB—



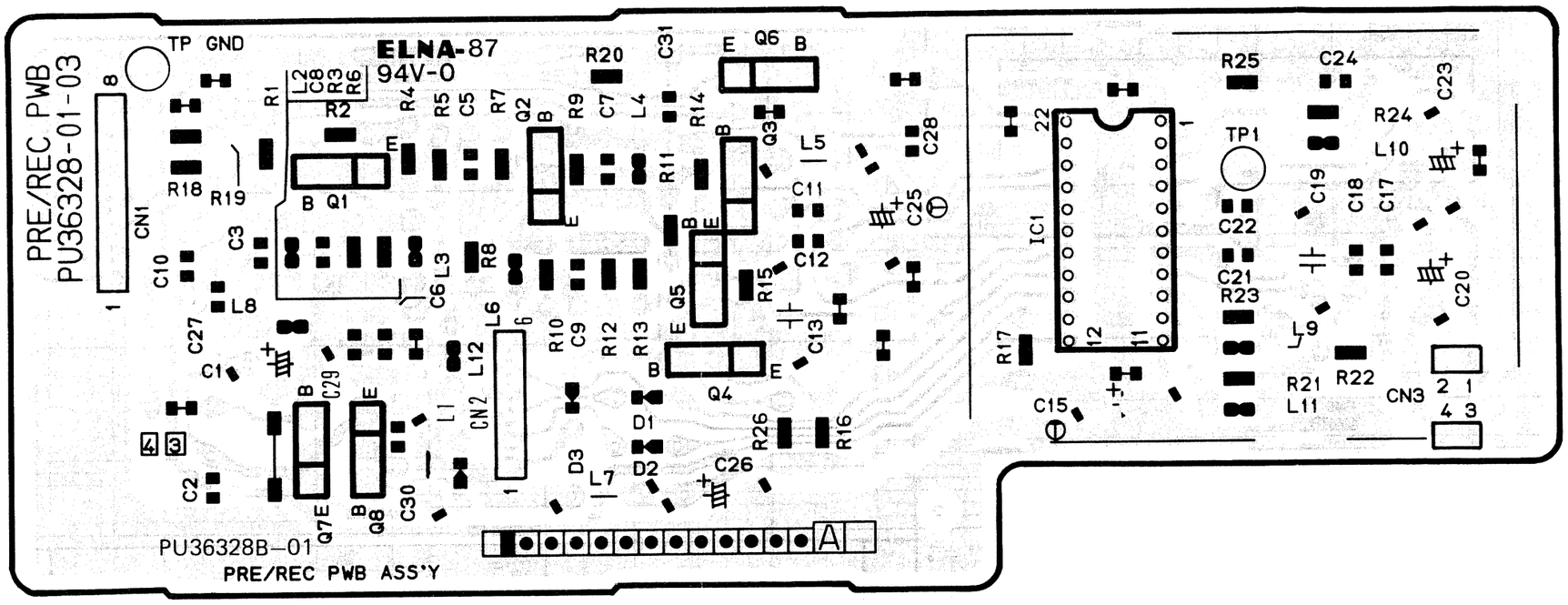
—REMOTE PAUSE ADAPT—



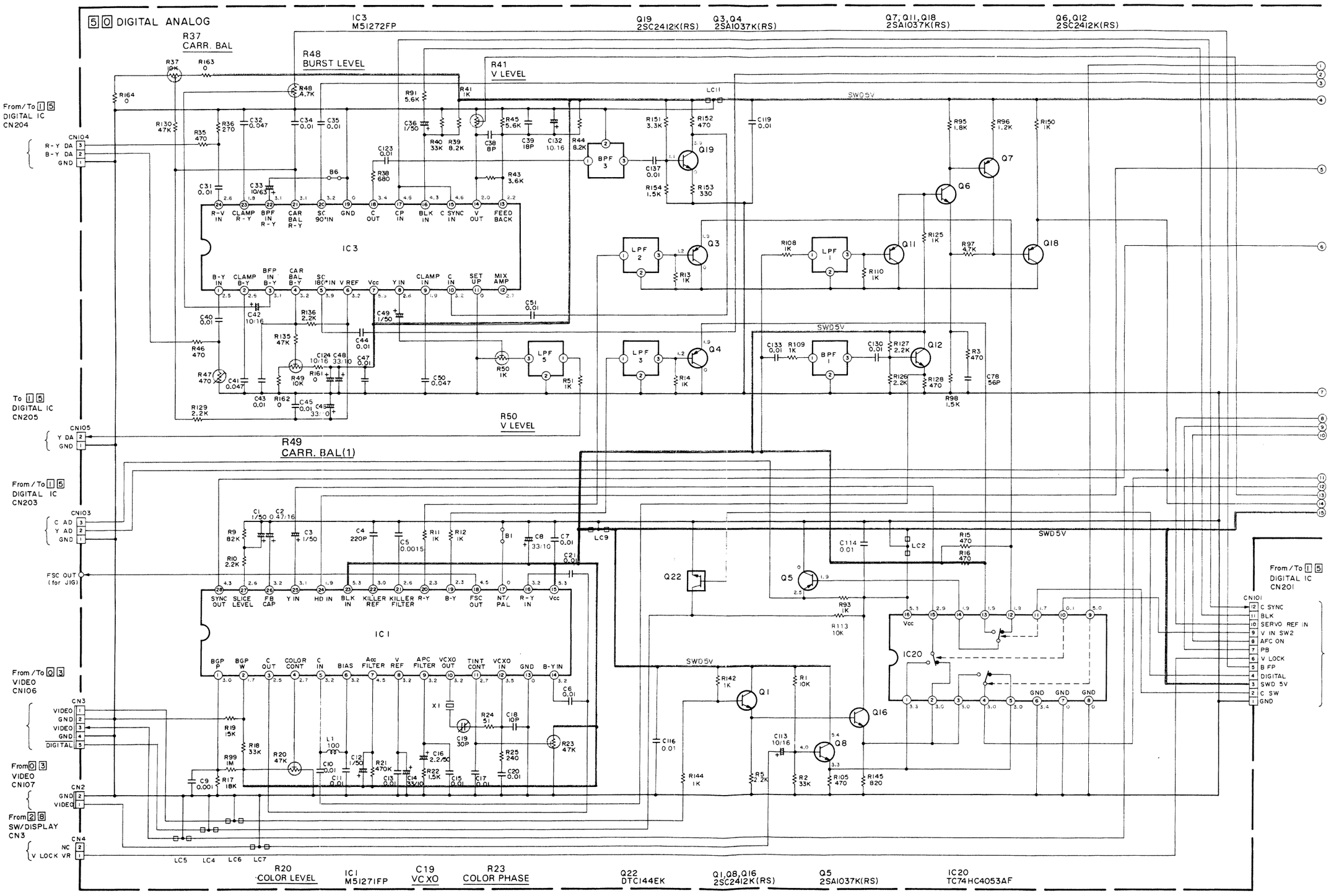
3.16 PRE/REC SCHEMATIC DIAGRAM



3-16 3-16


PRE/REC PWB
PU36328-01-03
ELNA-87
94V-0
TP GND
CN1
R1
L2
C8
R3
R6
R2
R4
R5
C5
R7
Q2
R9
C7
L4
R20
C31
R14
Q3
Q6
L5
C11
C12
C25
C28
R18
R19
B Q1
C3
C10
L8
C27
C1
L3
C6
R8
L6
L12
R10
C9
R12
R13
Q5
R15
C13
Q4
C29
L1
CN2
D1
D3
L7
D2
C26
R26
R16
C2
Q7E
Q8
C30
PU36328B-01
PRE/REC PWB ASS'Y
IC1
R25
C24
R24
C23
L10
TP1
C22
C21
R23
C19
C18
C17
C20
L9
R17
R21
L11
R22
CN3
C15
A
3-17
3-17

3.18 DIGITAL ANALOG SCHEMATIC DIAGRAM


5 0 DIGITAL ANALOG
IC3 M51272FP
Q19 2SC2412K(RS)
Q3,Q4 2SA1037K(RS)
Q7,Q11,Q18 2SA1037K(RS)
Q6,Q12 2SC2412K(RS)
R37 CARR. BAL
R48 BURST LEVEL
R41 V LEVEL
R50 V LEVEL
R49 CARR. BAL(1)
R20 COLOR LEVEL
IC1 M51271FP
C19 VCXO
R23 COLOR PHASE
Q22 DTC144EK
Q1,Q8,Q16 2SC2412K(RS)
Q5 2SA1037K(RS)
IC20 TC74HC4053AF
SWD5V
From/To 1 5 DIGITAL IC CN204
To 1 5 DIGITAL IC CN205
From/To 1 5 DIGITAL IC CN203
From/To 1 5 DIGITAL IC CN201
From/To Q 3 VIDEO CN106
From/To Q 3 VIDEO CN107
From 2 8 SW/DISPLAY CN3
CN104 R-Y DA B-Y DA GND
CN105 Y DA GND
CN103 C AD Y AD GND
CN3 VIDEO GND VIDEO GND DIGITAL
CN2 GND VIDEO
CN4 NC V LOCK VR
CN101 C SYNC BLK SERVO REF IN V IN SW2 AFC ON PB V LOCK B FP DIGITAL SWD 5V C SW GND
FSC OUT (for JIG)
LC5 LC4 LC6 LC7 LC9 LC11 LC2

Q21
DTC144EK

IC22
BA226F

Q2
DTC144EK

Q13
2SA1037K(RS)

IC4
M51279FP

LC10

R158 1K
R157 56K
Q21
IC22
R131 470
R33 56K
R155 1K
Q2
C139 0.0015
C37 0.0015
R133 2.2K
C131 0.01
BPF2
R117 1K
C134 0.01
R132 2.2K
Q13
C52 1/50
R52 82K
C53 0.47 35
C54 1/50
R53 2.2K
C55 220P
C56 0.012
C58 33/10
C57 0.01
B2

IC4

32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
SYNC OUT	SLICE LEVEL	FB CAP	Y IN	HD IN	BLK IN	KILLER REF	KILLER FILTER	FSC 90°/270° OUT	R-Y OUT	B-Y OUT	FSC 180°OUT	NT /PAL	R-Y IN	Vcc	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BGP P.	BGP W.	C OUT	COLOR CONT	C IN	BIAS	Acc FILTER	V REF	ID	APC FILTER	VCXO OUT	TINT CONT	VCXO IN	GND		

R55 33K
R56 15K
R54 18K
C59 0.001
R137 1M
R121 1K
R57 470K
C60 0.01
C61 0.01
C62 1/50
C64 33.10
C63 0.01
C65 0.01
C66 10/50
R58 1.5K
X2
C69 30P
C69 VCXO
R60 51
C68 10P
C67 0.01
R61 240
C70 0.01
R59 47K

R59
PINP COLOR PHASE

From / To [1] [5]
DEGITAL IC
CN202

CN102
1 NC
2 READ H
3 P. IN P.
4 V. OUT SW
5 H. SYNC 1
6 V. SYNC 1
7 C. SYNC
8 H. SYNC2
9 V. SYNC 2
10 SERVO REF
11 V. IN SW1

AFC ON
(For JIG)

From [1] [9]
POWER TRANSISTOR
CN2
2 GND
1 SWD 5V

R149 470
Q17
C22 0.033
C23 0.001
R26 82K

IC2

22	21	20	19	18	17	16	15	14	13	12
NC								V.SYNC OUT	V SEP	GND

1	2	3	4	5	6	7	8	9	10	11
NC	NC	AFC LPF	F. FREE CONT.	Vco	Vcc	AFC I CONP	H.SYNC OUT	SYNC SEP		V IN

C24 0.22/50
C25 0.068
C26 1/50
R28 10K
R29 22K
R30 22K
C27 680P
C29 0.01
C28 100/10
LC13
R94 1M
R31 2.2K
C30 0.1
R32 1M
C125 560P
R101 560

R30
AFC(1)

R106 8.2K

IC5

22	21	20	19	18	17	16	15	14	13	12
NC								V.SYNC OUT	V SEP	GND

1	2	3	4	5	6	7	8	9	10	11
NC	NC	AFC LPF	F. FREE CONT.	Vco	Vcc	AFC I CONP	H.SYNC OUT	SYNC SEP		V IN

C71 0.001
R62 82K
C72 0.068
R63 10K
C73 1/50
C74 680P
R65 22K
R64 2.2K
R66 22K
C75 0.01
R90 1M
C76 100/63
LC12
R67 2.2K
C77 0.1
R68 1M
C135 560P
R138 560
C140 100/10
L3 10
LC1

R66
AFC(2)

Q1,Q2
2SA1037K(RS)

R3 10K
R4 1K
Q2
Q1
R2 3.3K
C2 470P
D1 DAN202K
R1 4.7K
C1 0.01

DIGITAL SUB

From [0] [3]
VIDEO
4.43 MHz

Q17
2SA1037K(RS)

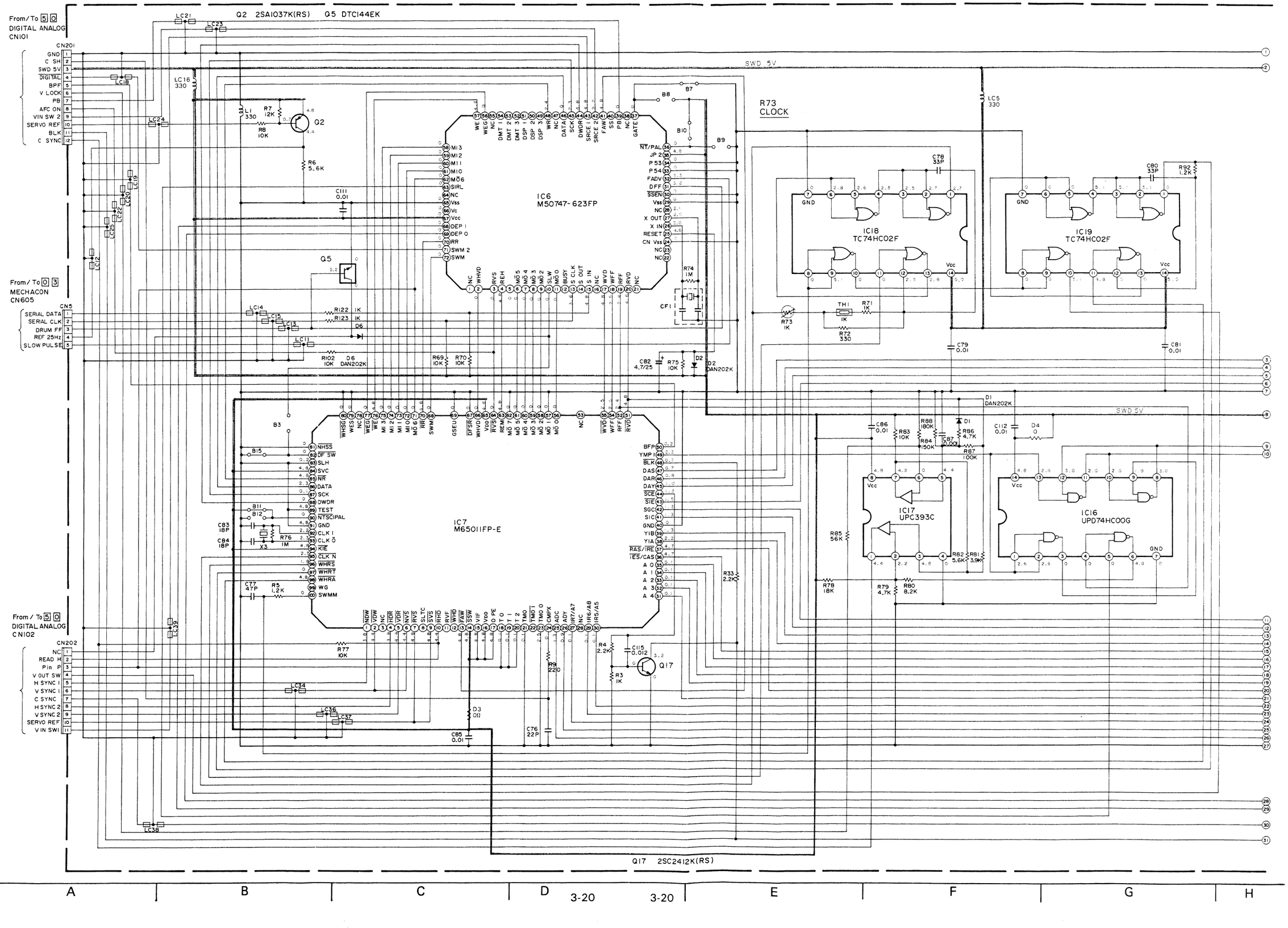
IC2
NJM2217L

IC5
NJM2217L

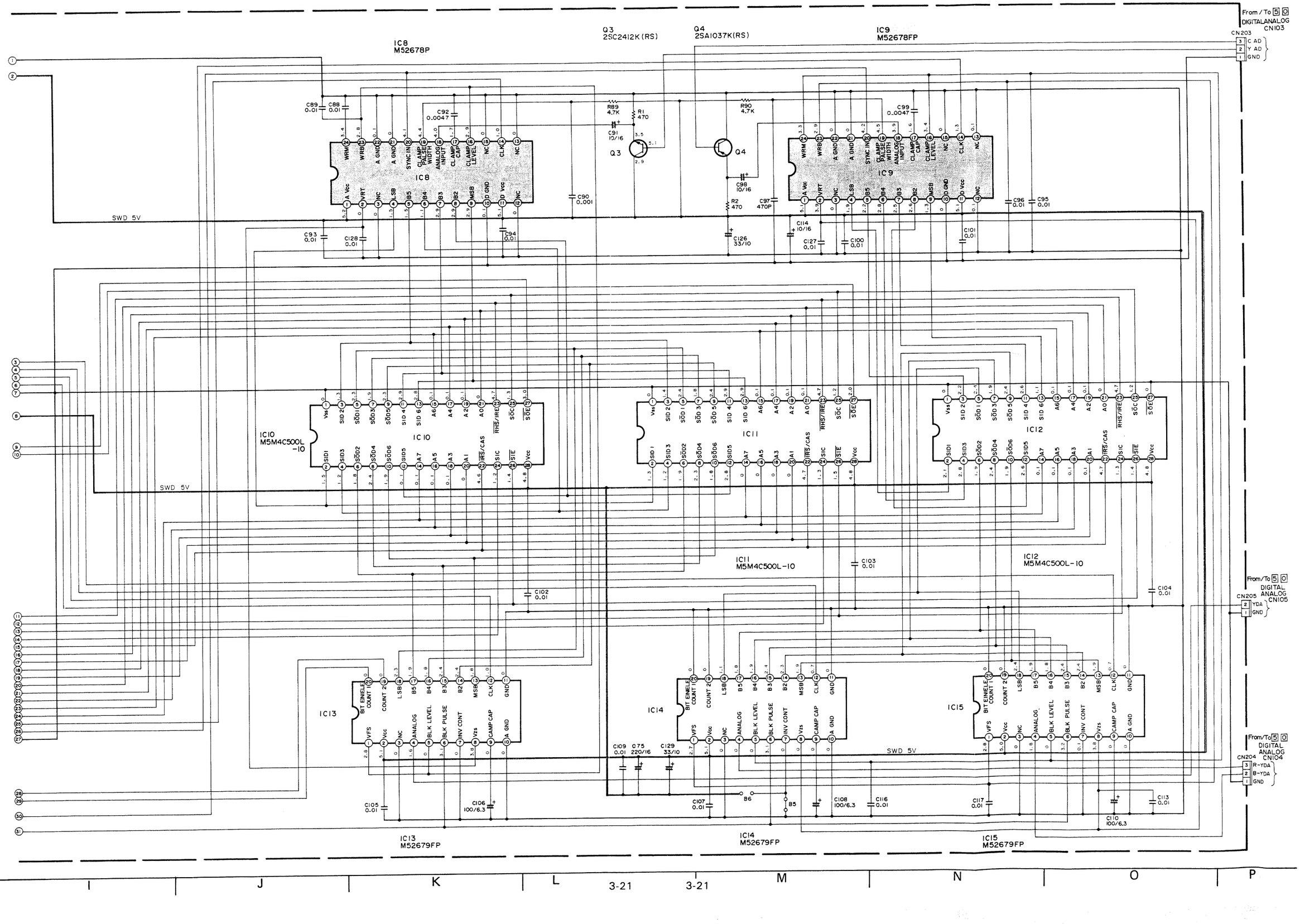
I J K L 3-19 3-19 M N O P

3.19 DIGITAL IC SCHEMATIC DIAGRAM

NOTE: Shaded (▒▒▒) parts are critical for safety. Replace only with specified part numbers.

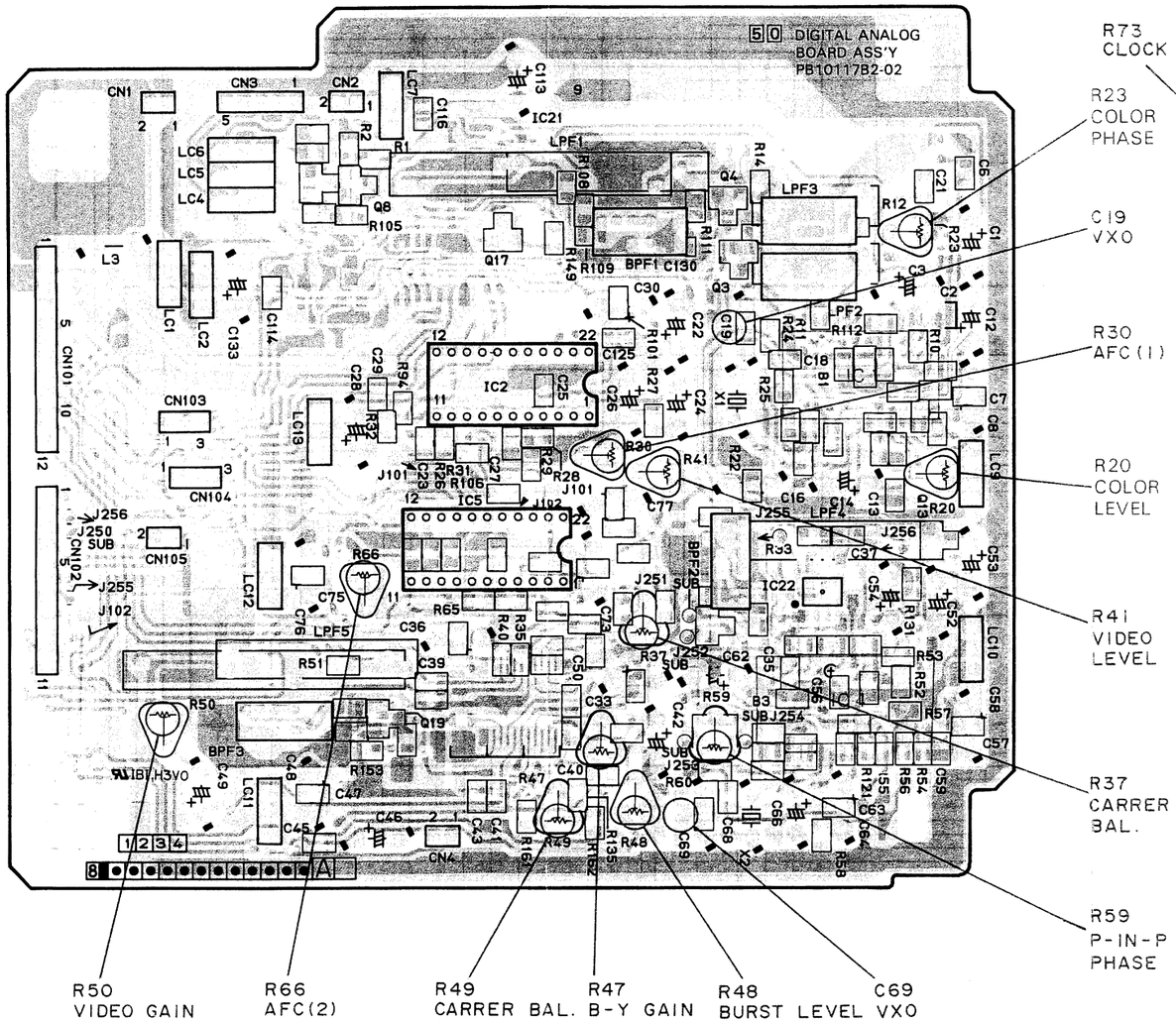


NOTE: Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

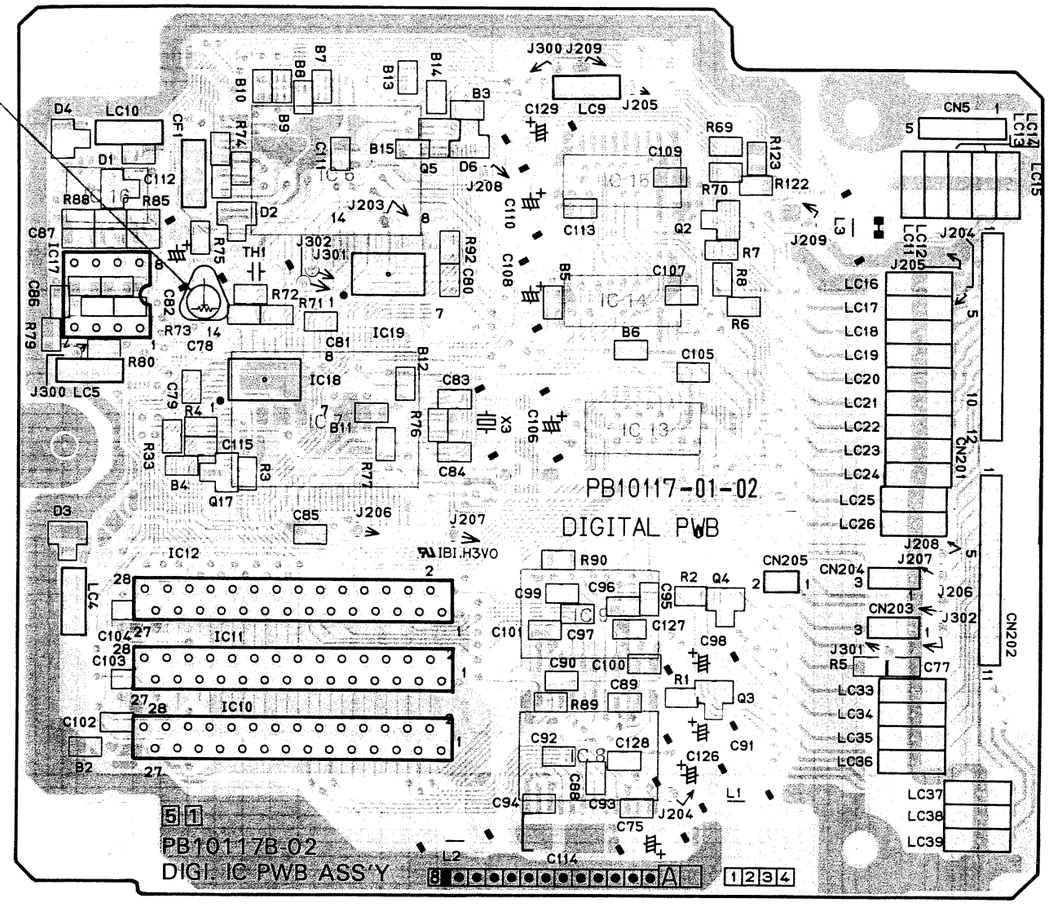


3.20 DIGITAL ANALOG AND IC CIRCUIT BOARDS

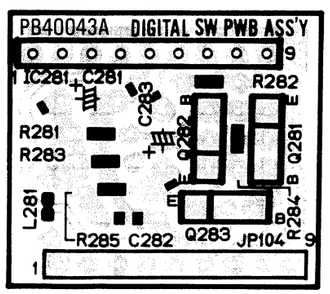
—DIGITAL ANALOG—



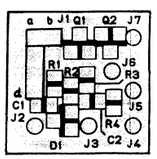
—DIGITAL IC—



—DIGITAL SW—



—DIGITAL SUB—

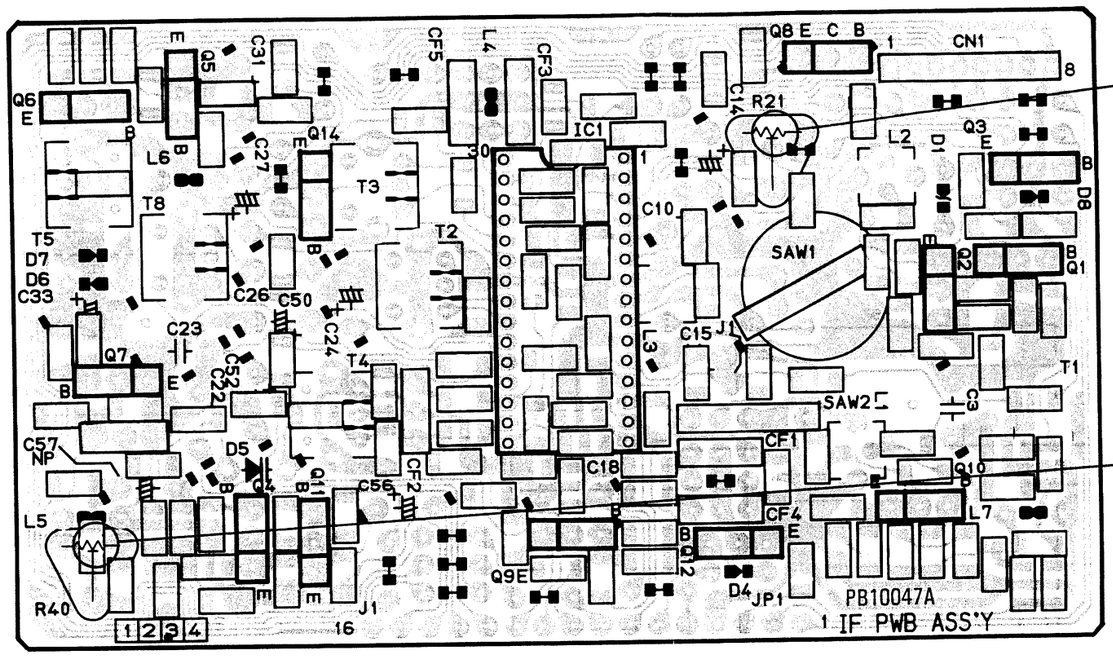


PB40048A

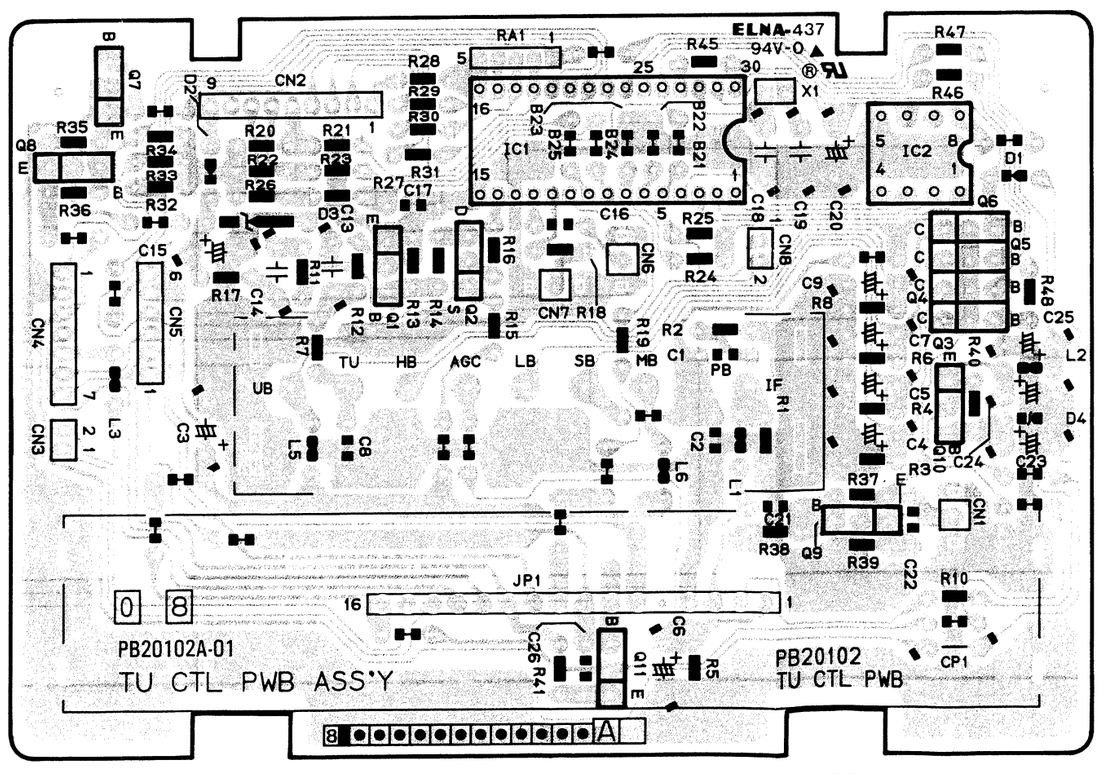
3-22

3.21 IF AND TUNER CONTROL CIRCUIT BOARDS

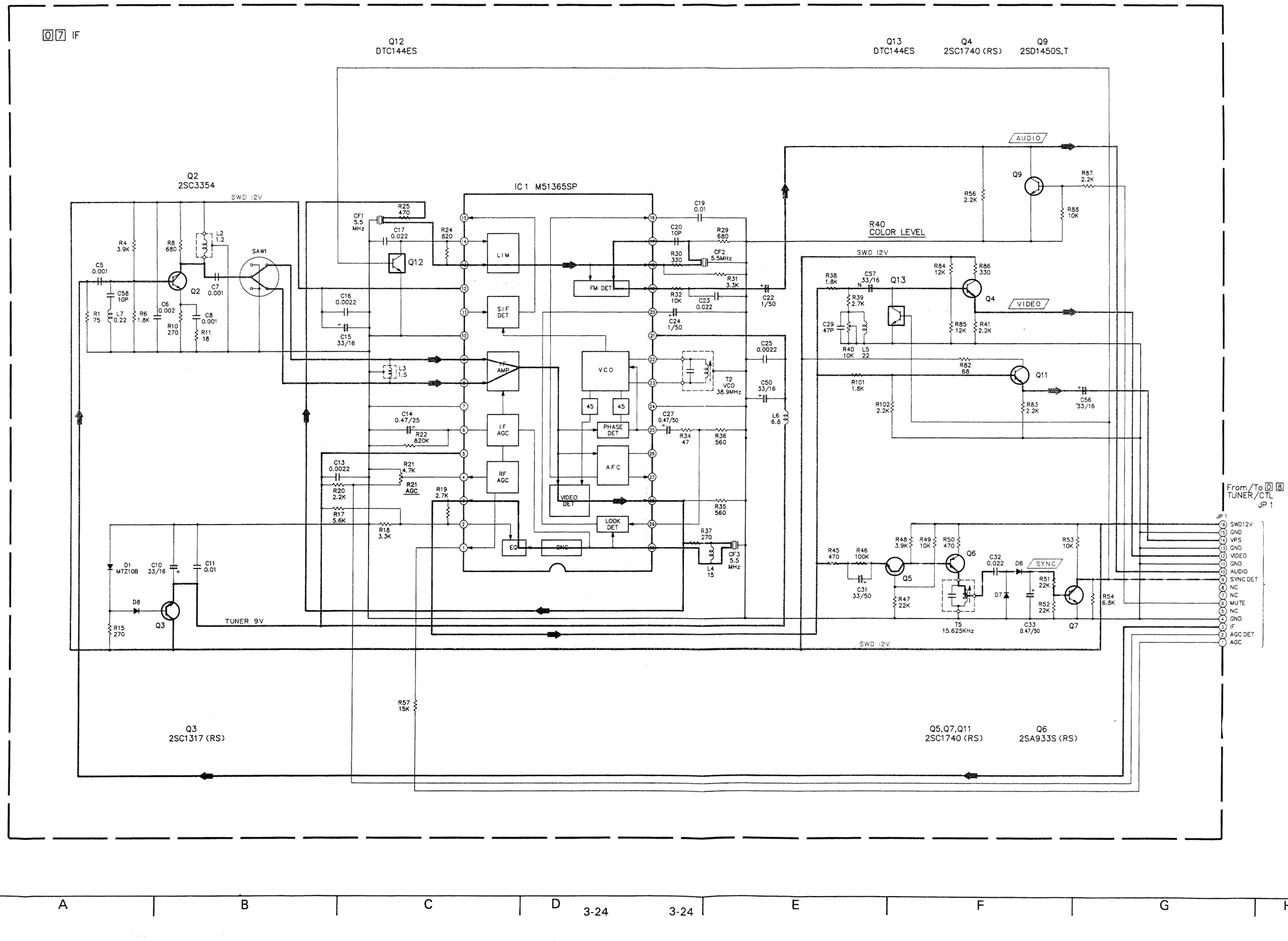
—IF—



—TUNER CONTROL—

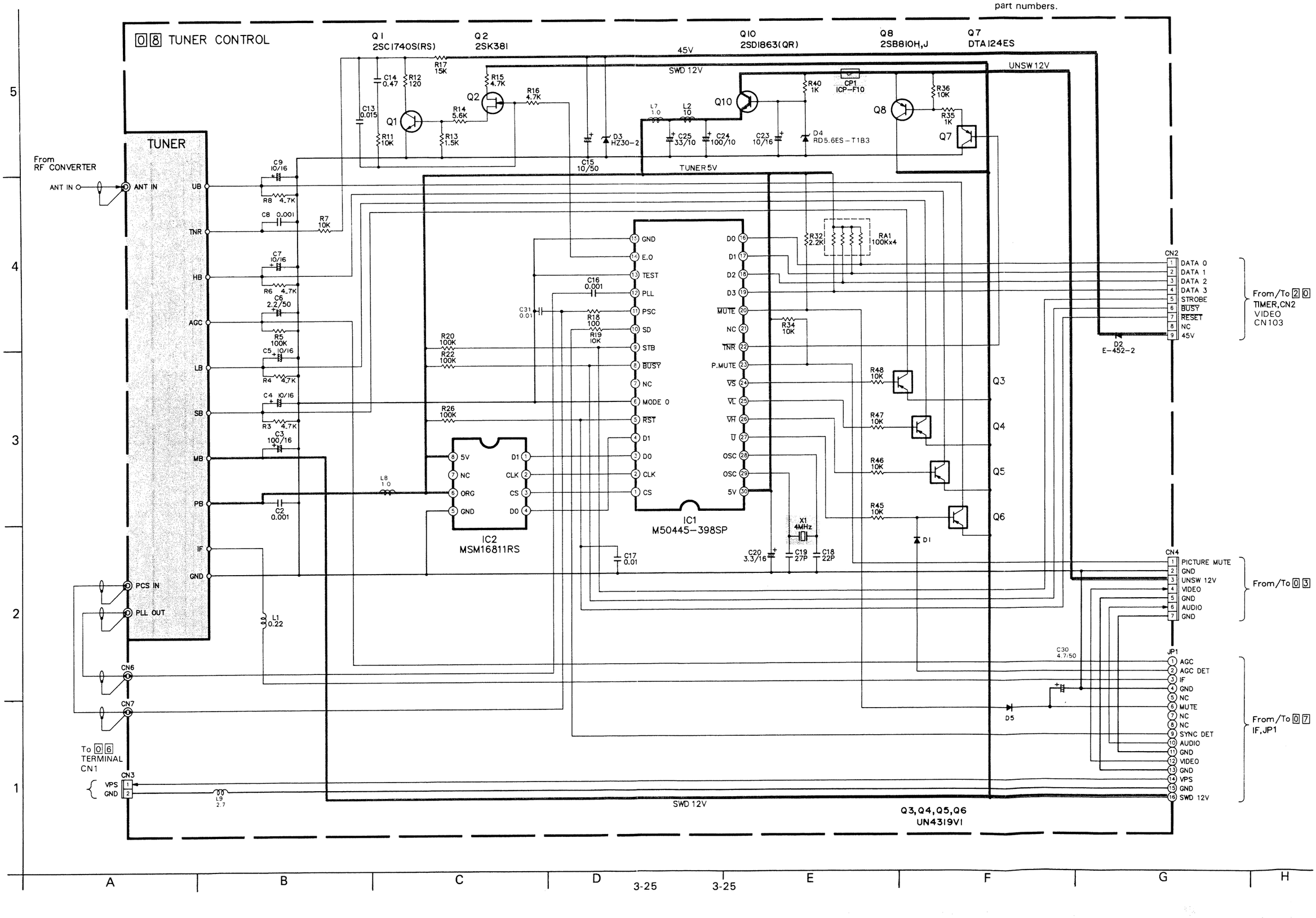


3.22 IF SCHEMATIC DIAGRAM



3.23 TUNER CONTROL SCHEMATIC DIAGRAM

NOTE: Shaded (▒) parts are critical for safety. Replace only with specified part numbers.



3-25 3-25

3.24 TIMER SCHEMATIC DIAGRAM

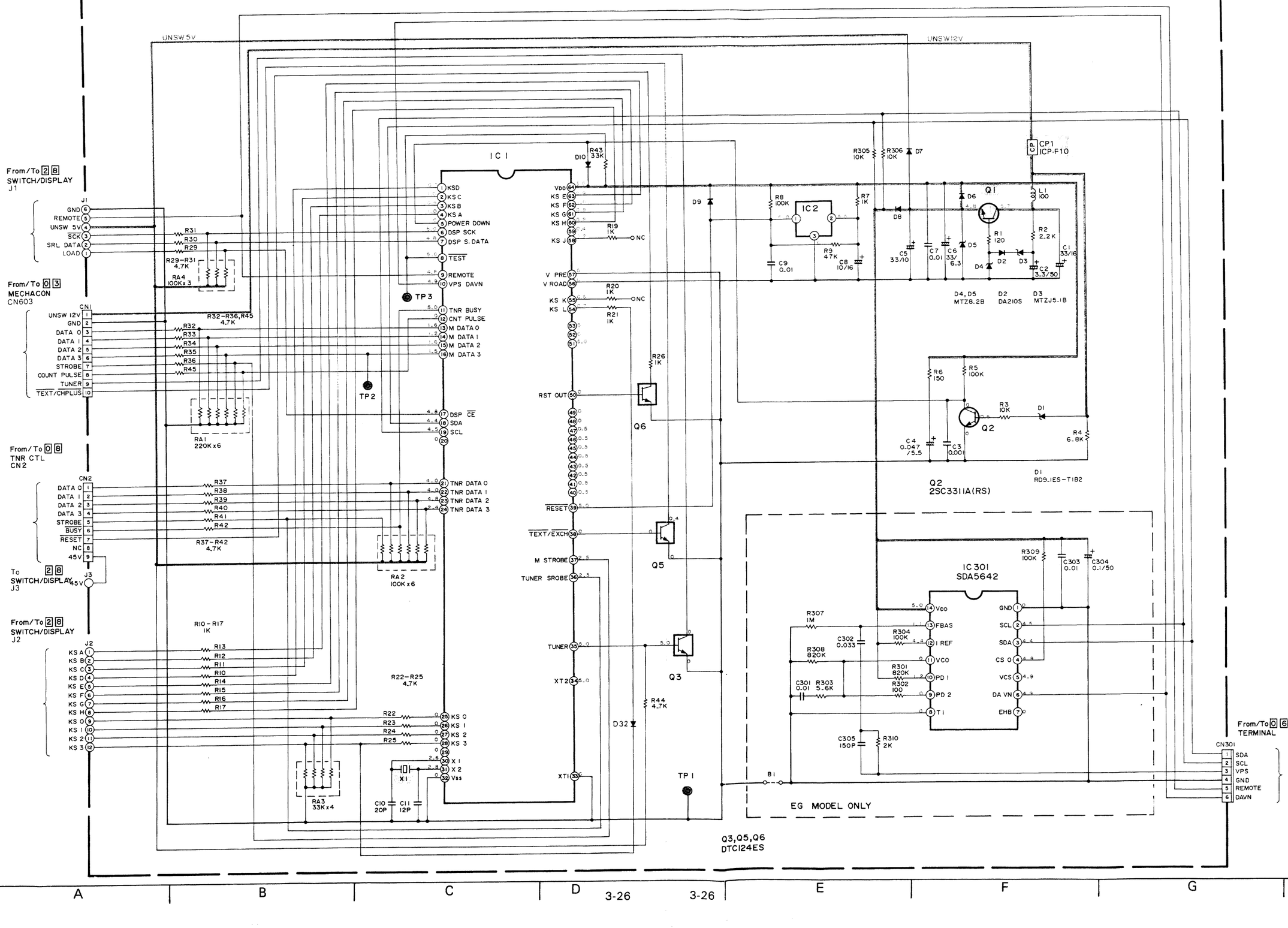
NOTE: Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

20 TIMER

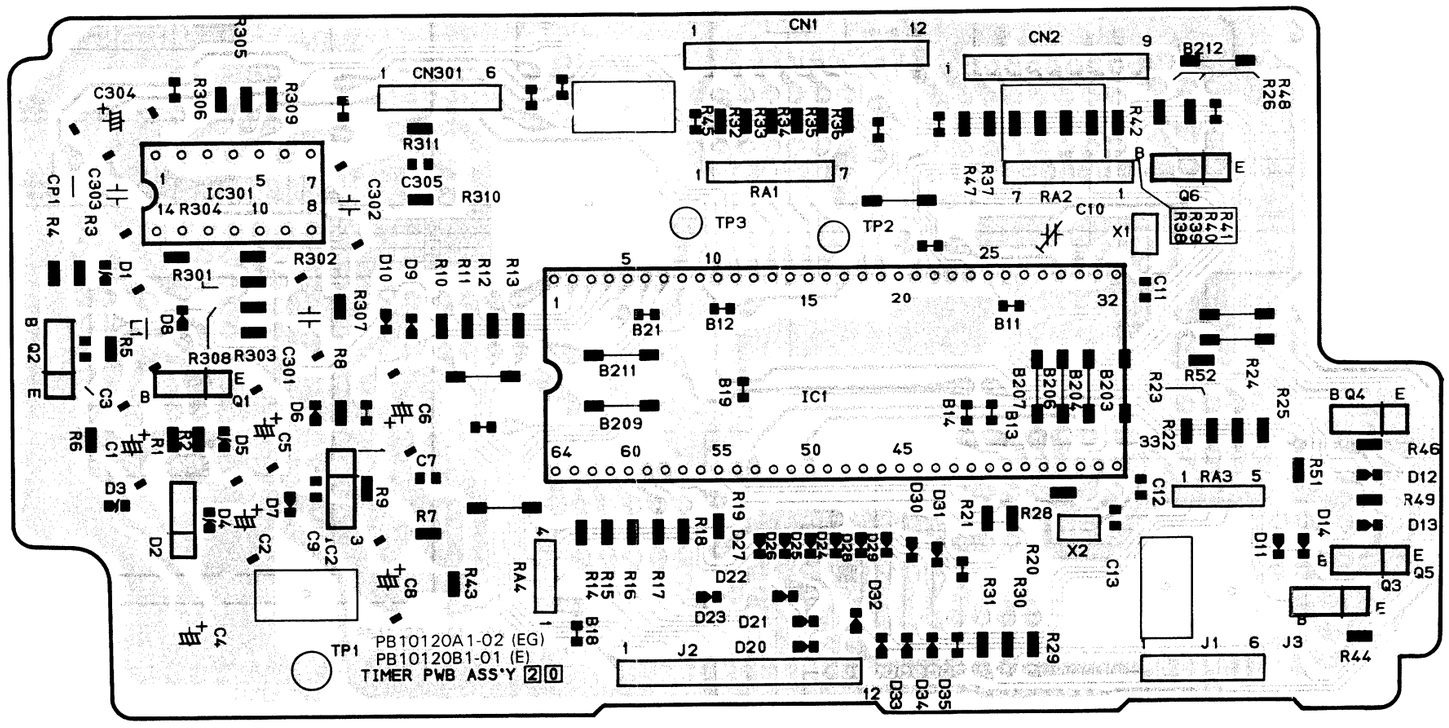
IC1
UPD75216ACW-163

IC2
S-8053HNB

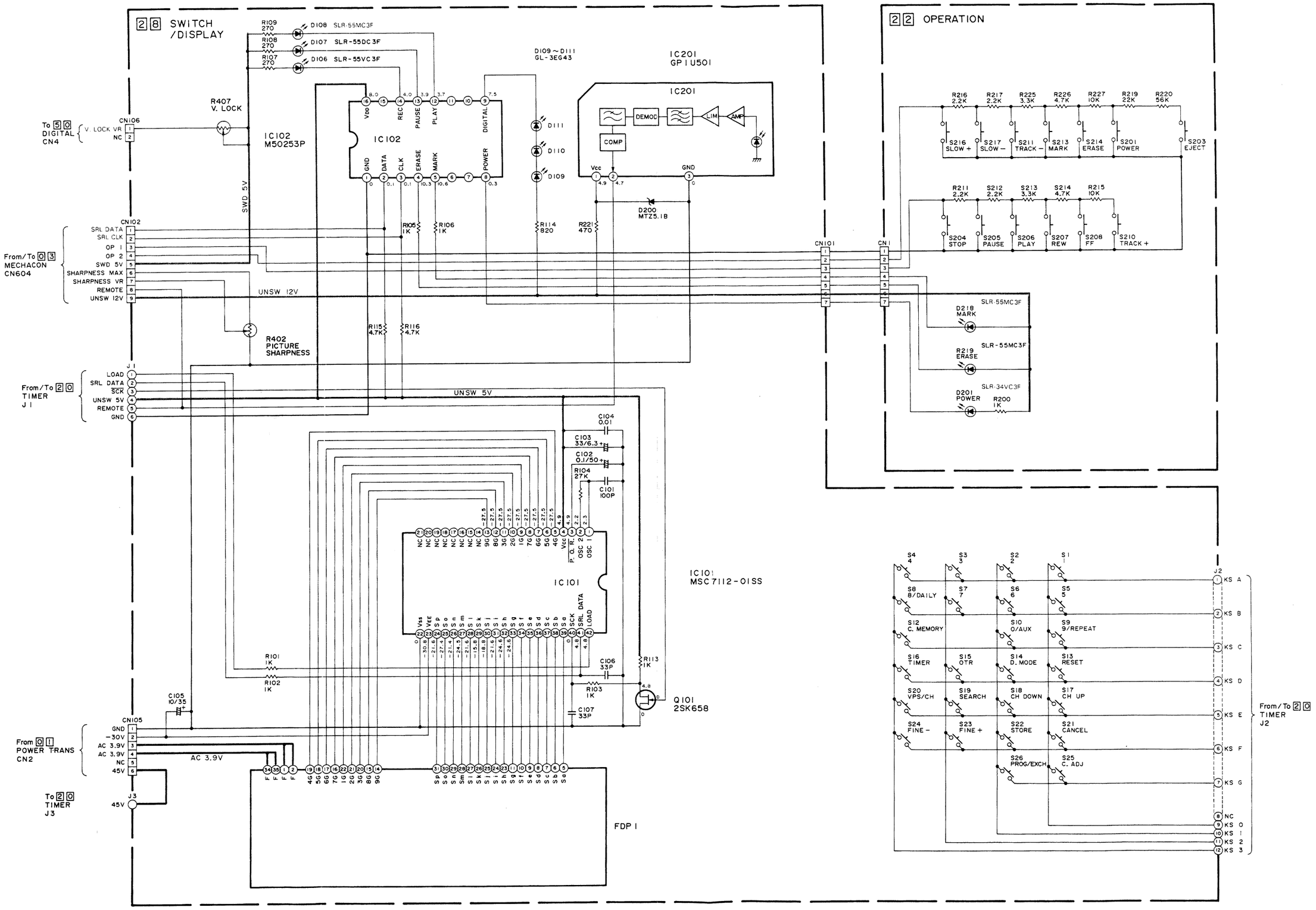
Q1
2SD1863(QR)



3.25 TIMER CIRCUIT BOARD

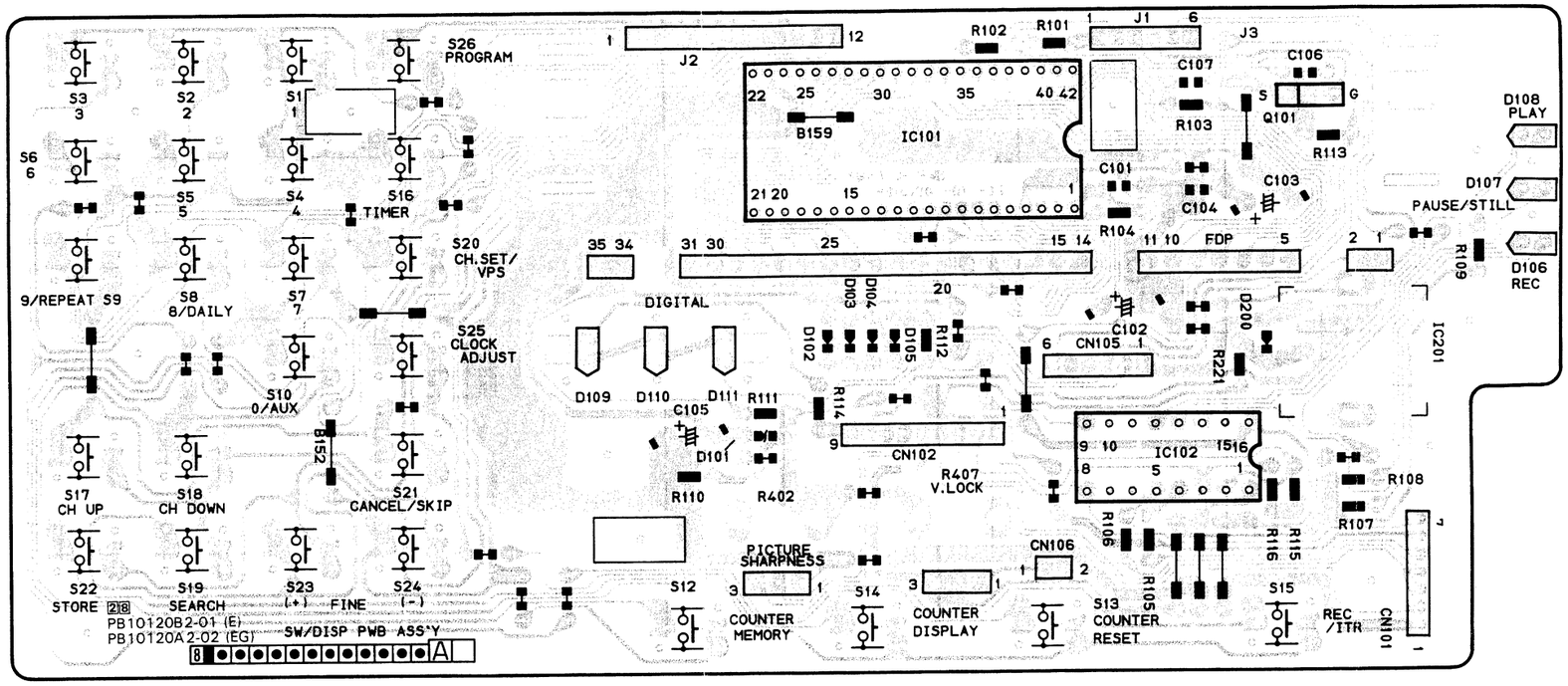


3.26 SWITCH/DISPLAY AND OPERATION SCHEMATIC DIAGRAMS

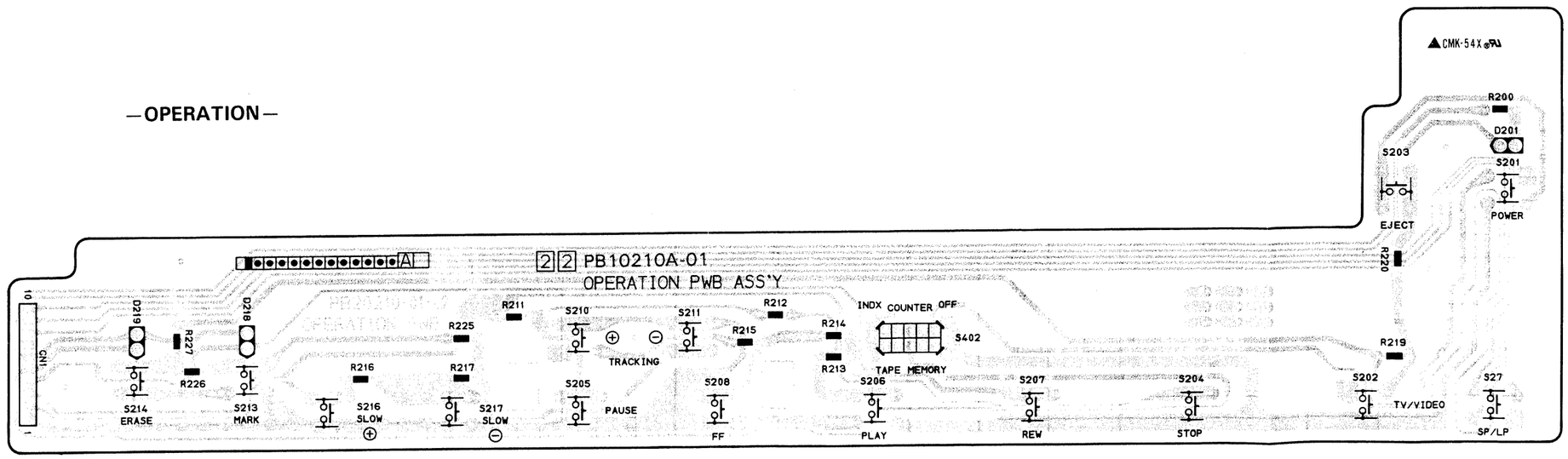


3.27 SWITCH/DISPLAY AND OPERATION CIRCUIT BOARDS

—SWITCH/DISPLAY—

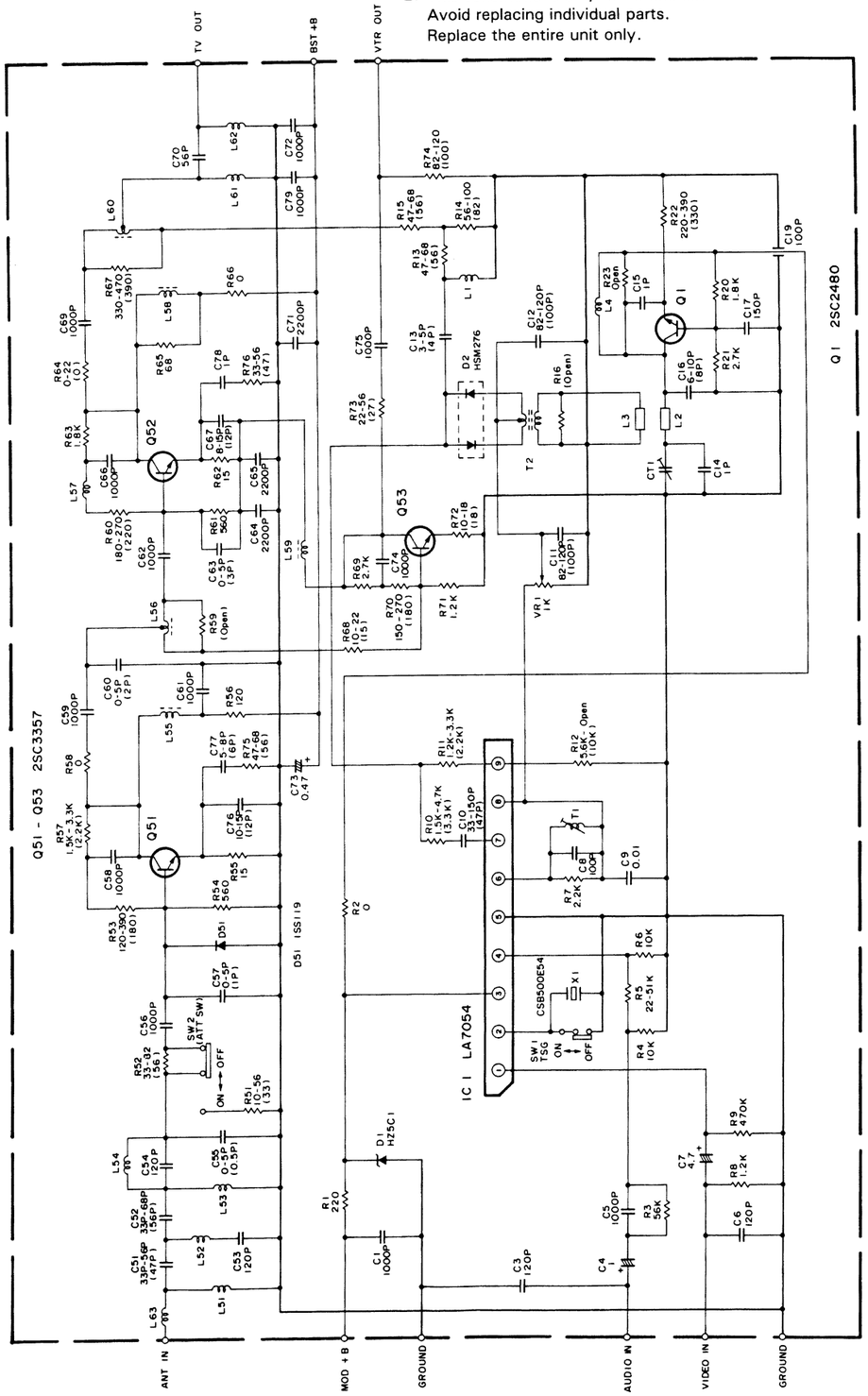


—OPERATION—



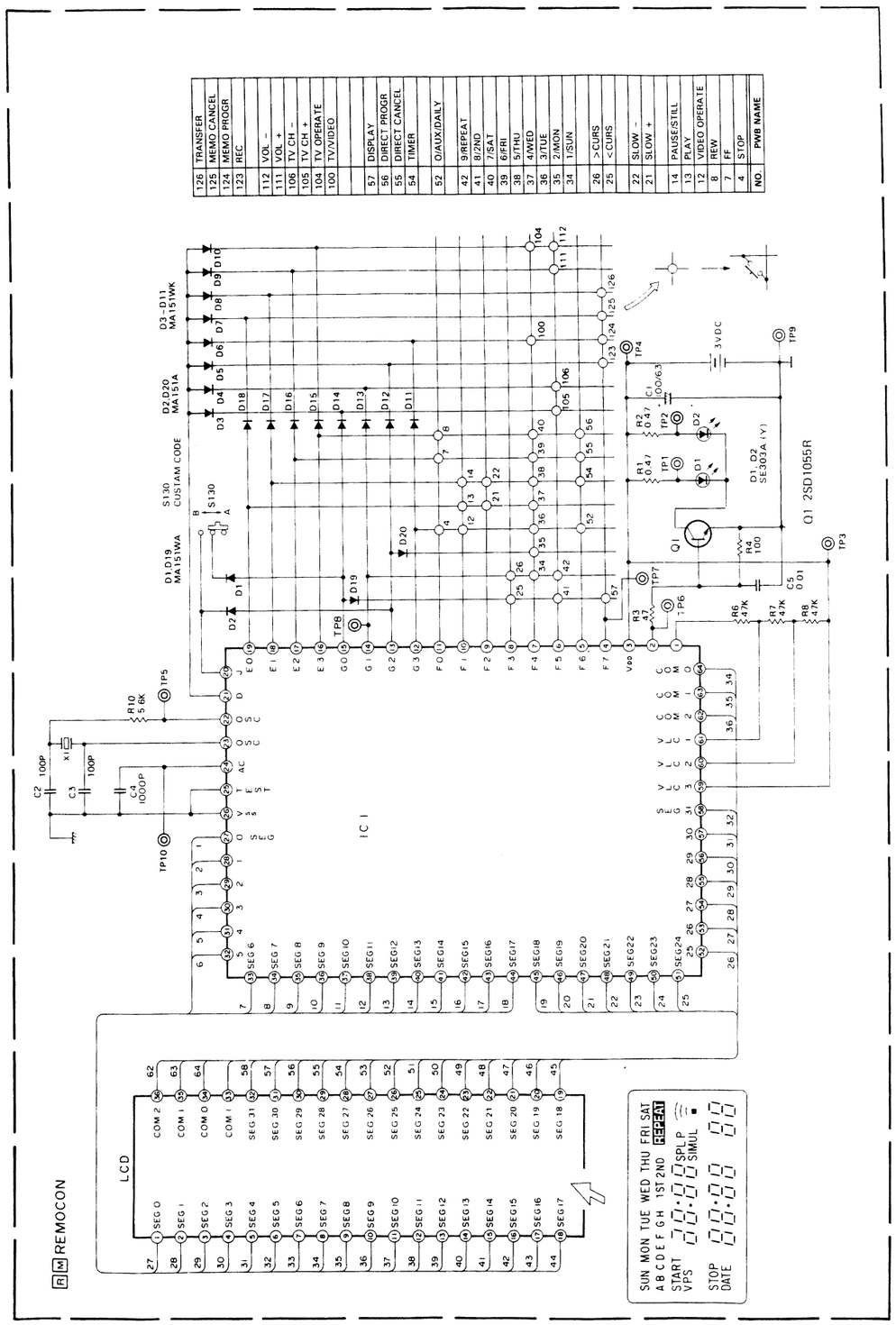
3.28 RF CONVERTOR AND MIX BOOSTER SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.



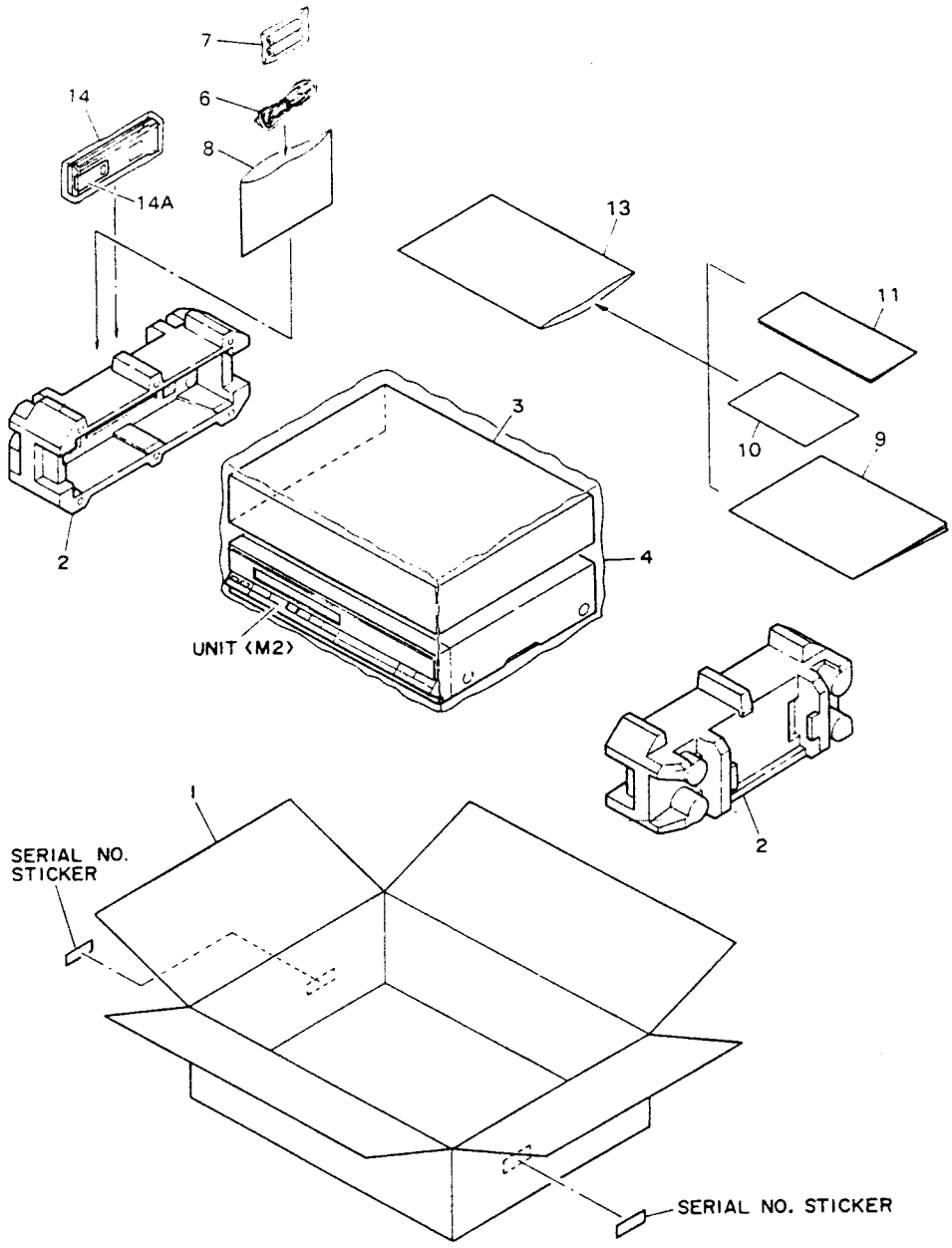
3.29 REMOCON SCHEMATIC DIAGRAM

NOTES: 1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entrie unit only.



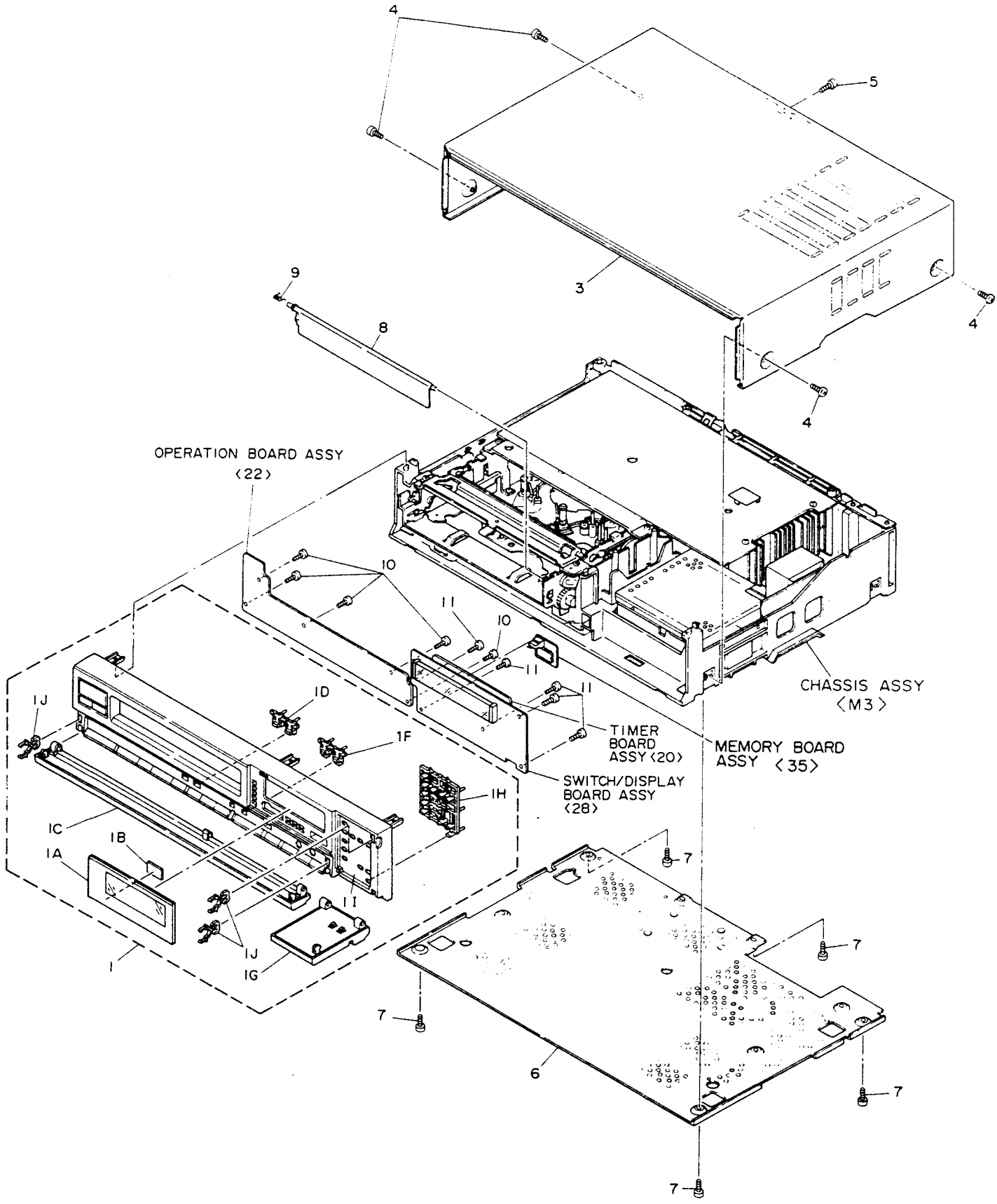
SECTION 4
EXPLODED VIEWS AND PARTS LIST

4.1 PACKING ASSEMBLY <M1>



#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
				PACKING ASSEMBLY <M1>
		1	PQ31705-146	PACKING CASE,FOR EG
		1	PQ31705-159	PACKING CASE,FOR E
		2	PQ31706A-1	CUSHION ASSY
		3	PQ41026-8	PROTECT SHEET
		4	PQM30021-59-11	POLY BAG
	⚠	6	PU59168-3	RF CABLE
	⚠	6 OR	PU59167-3	RF CABLE
		7	UM-3DJ2P	BATTERY
		8	QPGA020-02003	POLY BAG
	⚠	9	PU30425-985	INSTRUCTIONS ,FOR E
	⚠	9	PU30425-979	INSTRUCTIONS,FOR EG
		10	TCN-3379	TAPE CATALOG
		11	BT-20069A	WARRANTY CARD
		13	QPGA025-03505	POLY BAG
	⚠	14	PQ10543AK	REMOTE CONTROLLER,FOR EG
	⚠	14	PQ10543AN	REMOTE CONTROLLER,FOR E
		14A	PQ31449	BATTERY CAP

4.2 CABINET ASSEMBLY <M2>



#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION

CABINET ASSEMBLY <M2>

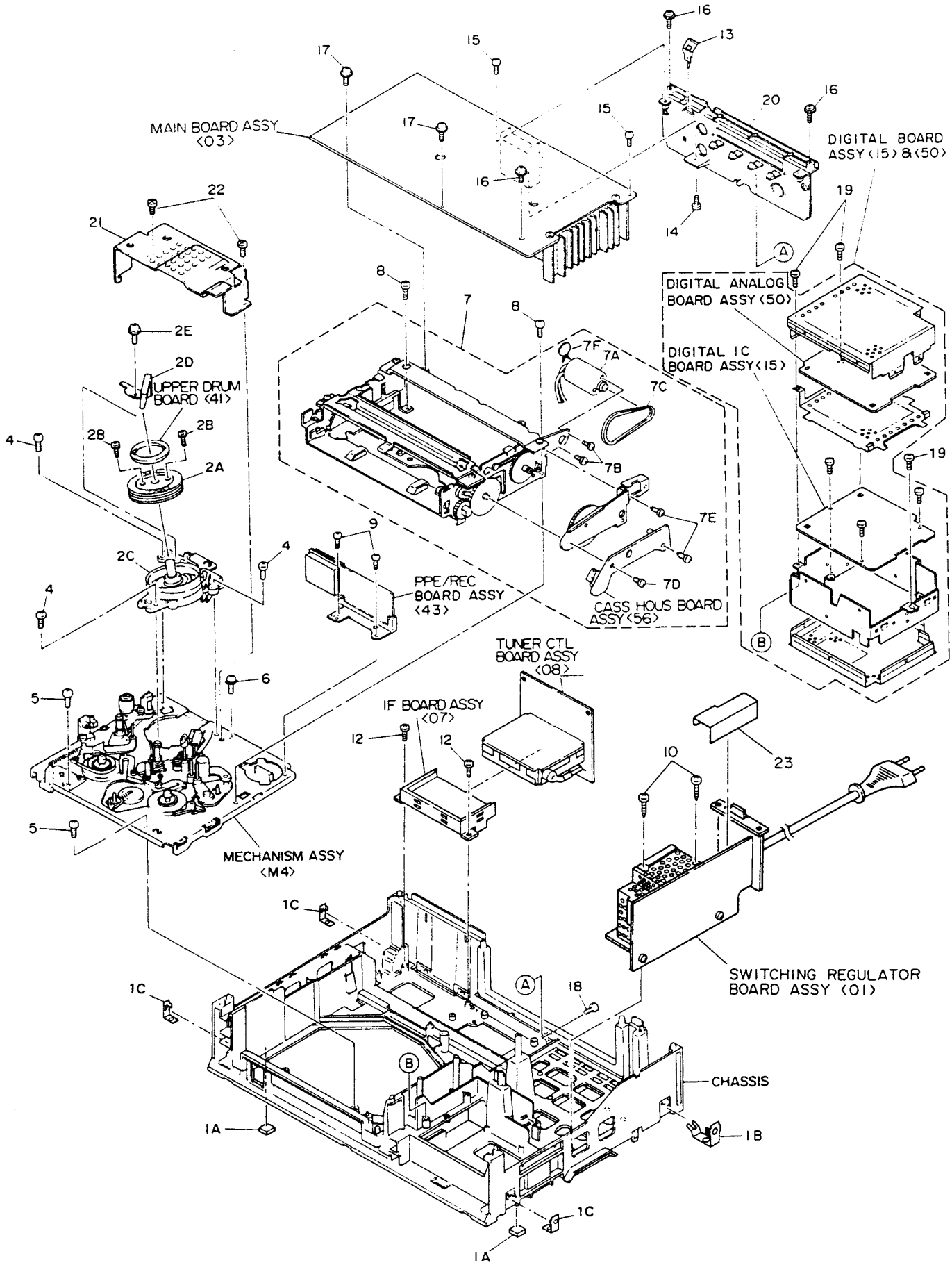
		1	PQ10666E-1	FRONT PANEL ASSY,FOR E
		1	PQ10666A-3	FRONT PANEL ASSY,FOR EG
		1A	PQ32323-2	WINDOW,FOR E
		1A	PQ32323	WINDOW,FOR EG
		1B	PQ41808-3	IFR FILTER
		1C	PQ20626E-1	DOOR ASS'Y
		1D	PQ32314-2	BUTTON(OPE 1),FOR E
		1D	PQ32314	BUTTON(OPE 1),FOR EG
		1F	PQ32315-2	BUTTON(OPE 2),FOR E
		1F	PQ32315	BUTTON(OPE 2),FOR EG
		1G	PQ32332C	DOOR ASSY,FOR E
		1G	PQ32332A-1	DOOR ASSY,FOR EG
		1H	PQ32331	BUTTON(PROG.)
		1I	PQ32328-3	PLATE(2),FOR E
		1I	PQ32328-1-1	PLATE(2),FOR EG
		1J	PU60109	CATCHER, X3
	⚠	3	PQ10473-14	TOP COVER,FOR EG
	⚠	3	PQ10473-16	TOP COVER ,FOR E
		4	SDSA4014M	TAPPING SCREW, X4
		5	SDSF3010M	TAPPING SCREW
	⚠	6	PQ10472-1-2	BOTTOM COVER
		7	SDSF3008Z	TAPPING SCREW, X5
		8	PQ31267-150	C.HOUSING DOOR, FOR E
		8	PQ20689	C.HOUSING DOOR, FOR EG
		9	PQ42410-1-1	TORSION SPRING
		10	SDSF2608ZY	TAPPING SCREW, X5
		11	SDSF2608ZY	TAPPING SCREW, X5

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION

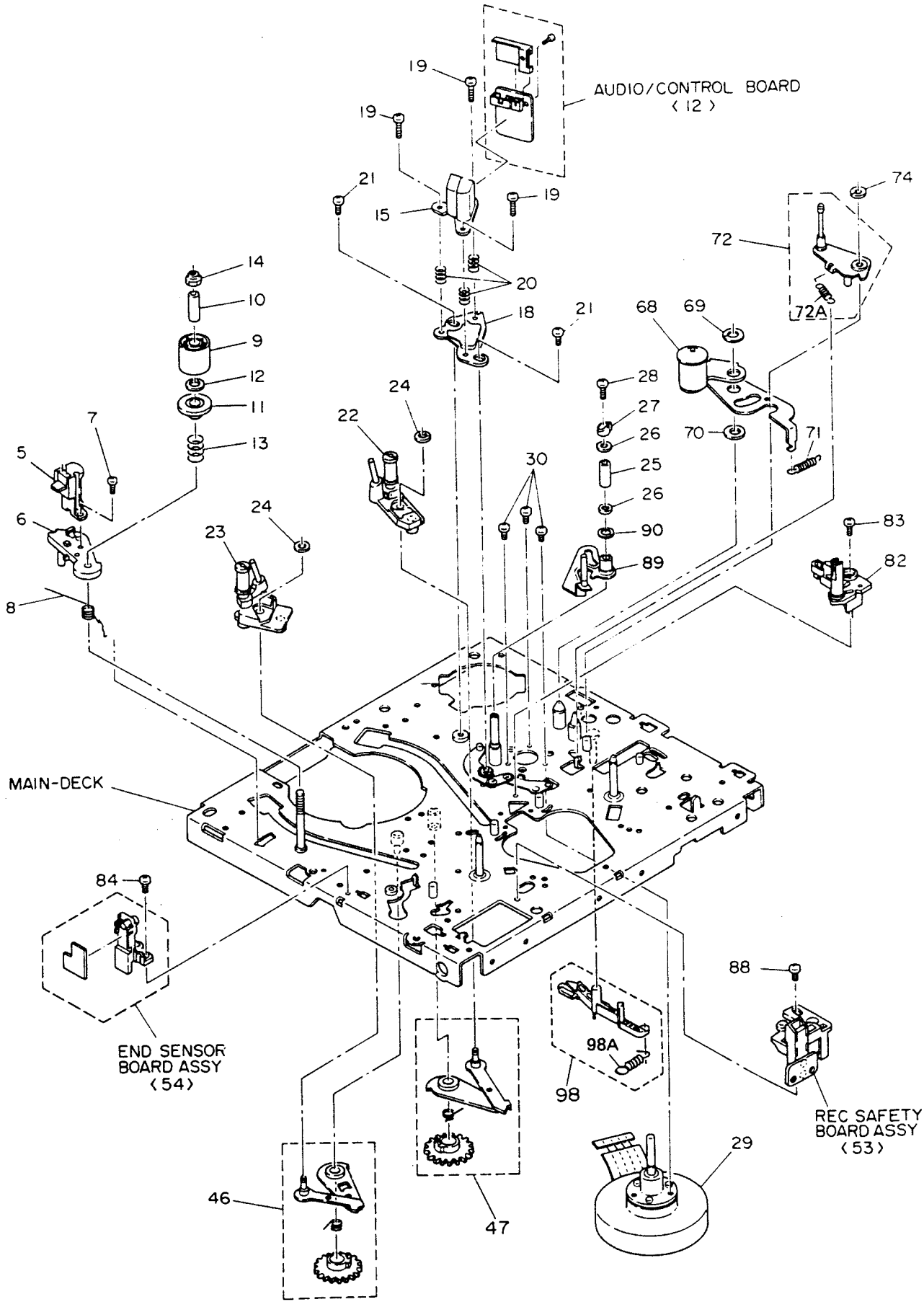
CHASSIS ASSEMBLY <M3>

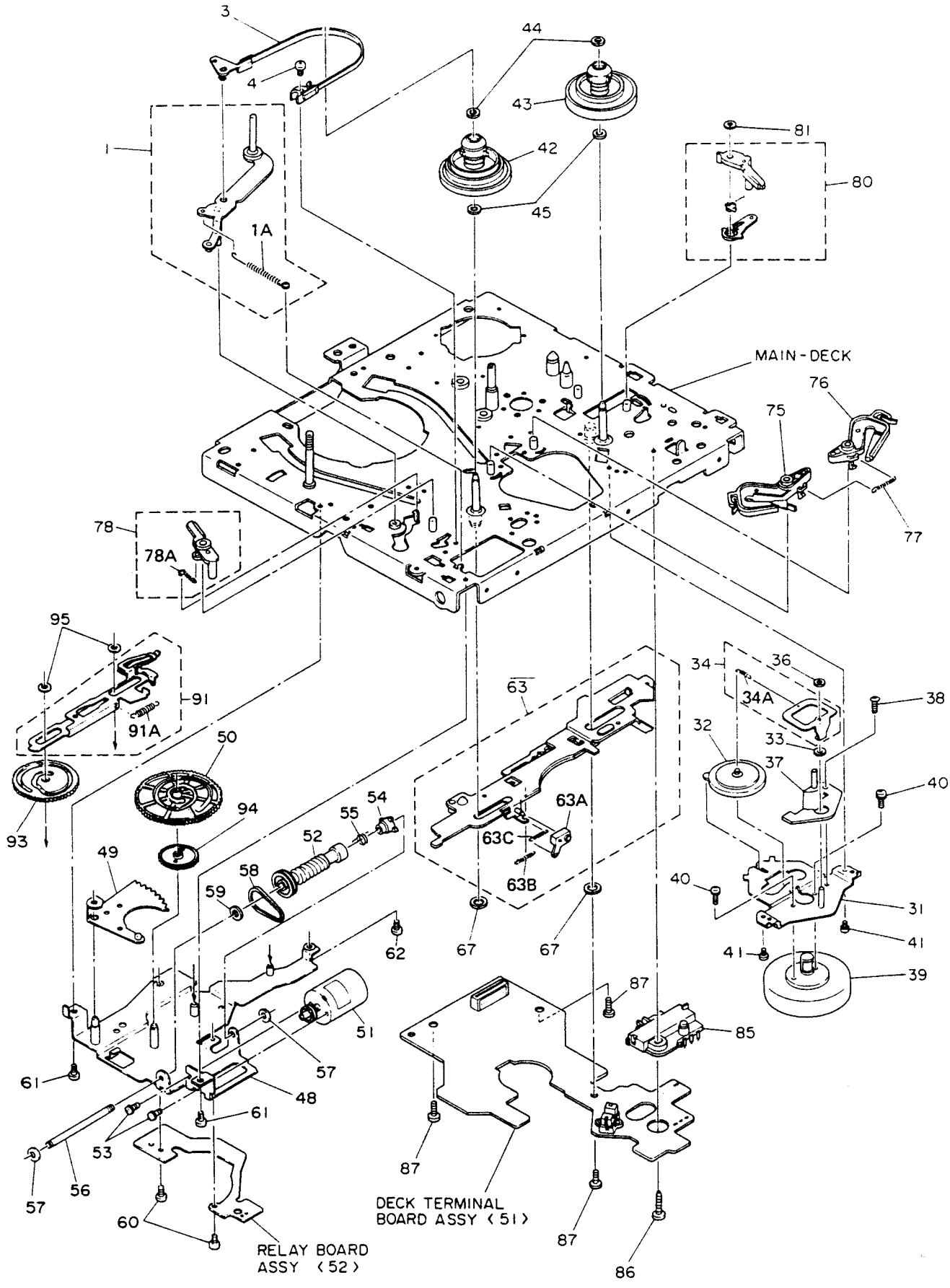
		1A	PQ43013	FOOT, X2
		1B	PQ43023	EARTH PLATE
		1C	PQ43011	EARTH PLATE, X3
		2A	PDM2008B-5	UPPER DRUM ASSY
		2B	PDM4165A	DRUM SCREW ASSY, X2
		2C	PDM2101C-3	LOWER DRUM MOTOR ASSY
		2D	PDM4015B	BRUSH ASSY
		2E	LPSP2606Z	SCREW
		4	SDSP2608Z	SCREW, X3, DRUM
		5	SDSA4014Z	TAPPING SCREW, X2, M.DECK
		6	PQ41396	SPECIAL SCREW, M.DECK
		7	PUS28277H	CASS.HOUSING ASSY
	⚠	7A	PQ42385A	CASSETTE MOTOR ASSY
	⚠	7A OR	PQ42385B	CASSETTE MOTOR ASSY
		7B	SPSP2603Z	SCREW, X2
		7C	PQM30003-19	BELT
		7D	SPSP2604Z	SCREW
		7E	SPST2605Z	TAPPING SCREW, X2
		7F	DV710SR223M16	VARISTOR
		8	SDST2605Z	TAPPING SCREW, X2, C.HOUSING
		9	SDST2605Z	TAPPING SCREW, X2, P.REC BOARD
		10	SDSA4014Z	TAPPING SCREW, X2, P.TRAMS
		12	SDSF3008Z	TAPPING SCREW, X2, TUNER BOARD
		13	PQ43012	EARTH PLATE, RF CONV
		14	SDST2605Z	TAPPING SCREW, RF CONV
		15	SDSA2608Z	TAPPING SCREW, X2, TERM BOARD
		16	GPSF2610Z	TAPPING SCREW, X3, MAIN BOARD
		17	GPST2608Z	SCREW, X2, MAIN BOARD
		18	SDSF3010M	TAPPING SCREW, TERM BOARD
		19	SDSF3008Z	TAPPING SCREW, X3, DIGI.CASE
	⚠	20	PQ20438-17	TERMINAL BOARD, FOR EG
	⚠	20	PQ20438-19	TERMINAL BOARD, FOR E
		21	PQ31171-4	DRUM SHIELD
		22	SDST2605Z	TAPPING SCREW, X2, D.SHIELD
	⚠	23	PU60728-1-1	AC COVER

4.3 CHASSIS ASSEMBLY <M3>



4.4 MECHANISM ASSEMBLY <M4>

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RELAY BOARD
ASSY (52)
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DECK TERMINAL
BOARD ASSY (51)
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MECHANISM ASSEMBLY <M4>

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		1	PQ41944A-7	TENSION ARM ASSY
		1A	PQ41952-3	SPRING
		3	PQ41948A	TENSION BAND ASSY
		4	SDST2606Z	TAPPING SCREW
		5	PU57641-2	FULL ERASE HEAD
		6	PQ31036	FULL ERASE HEAD BASE
		7	SPSG2606Z	SCREW
		8	PQ41954-1-1	TORSION SPRING
		9	PQ41955	IMPEDANCE ROLLER
		10	PQ41956	COLLAR
		11	PQ41957	LOWER FLANGE
		11 OR	PQ42958	LOWER FLANGE
		12	PQM30018-39	SPACER
		12 OR	PQM30018-50	SPACER
		13	PQM30002-124	COMPRESSION SPRING
		14	PQ40353	NYLON NUT
		15	PU60560	AUDIO/CONTROL HEAD
		18	PQ42984-2	HEAD BASE
		19	SPSP2608Z	SCREW, X3
		20	PU30080-49	SPRING, X3
		21	SDSP2606Z	SCREW,X2
		22	PU60557	POLE BASE ASSY(TAKE-UP)
		22 OR	PU59994	POLE BASE ASSY(TAKE-UP)
		23	PU60556	POLE BASE ASSY(SUPPLY)
		23 OR	PU59993	POLE BASE ASSY(SUPPLY)
		24	PQM30017-5	SLIT WASHER,X2
		25	PU53629-3	TAPE GUIDE
		26	PQ40268-2	GUIDE FLANGE
		27	PQ42999-2-1	G.POLE CAP
		28	SDSP2006Z	SCREW
	△	29	PU60201V	CAPSTAN MOTOR
		30	SPSP2605N	SCREW,X3
		31	PQ41974A-3	REEL MOTOR BRACKET ASSY
		32	PU58645-1-4	IDLER ARM
		33	Q03093-834	WASHER
		34	PQ41976A-1	SP ARM ASSY
		34A	PQ42212-1-4	SPRING
		36	PQM30017-22	SLIT WASHER
		37	PQ41978	HOLDER
		38	SPST2606Z	SCREW
	△	39	PU59926V	REEL MOTOR
		40	LPSP2604Z	SCREW,X2
		41	SPST2606Z	SCREW,X2
		42	PU59250-1-2	REEL DISK(SUPPLY)
		43	PU58638-1-2	REEL DISK(TAKE-UP)
		44	PQM30017-5	SLIT WASHER,X2
		45	Q03093-828	WASHER,X2
		46	PQ41979A-5	LOADING ARM ASSY(SUPPLY)
		47	PQ41985B-3	LOADING ARM ASSY(TAKE-UP)
		48	PQ42973A	CAM BRACKET ASSY
		49	PQ41994A-3	ARM GEAR ASSY
		50	PQ20577	CONTROL CAM
		51	PQ41996B	MODE MOTOR ASSY
		52	PQ41998A	WORM ASSY
		53	LPSP2604Z	SCREW,X2
		54	PQ42001	WINDMILL
		55	PQ42002	CLUTCH SPRING
		56	PQ42003	WORM SHAFT
		57	PQM30017-5	SLIT WASHER,X2
		58	PQM30003-20	BELT
		59	PQM30018-22	SPACER
		60	SPST2606Z	SCREW,X2
		61	SPST2606Z	SCREW,X2
		62	SPSP2603Z	SCREW
		63	PQ42038C	PLATE ASSY
		63A	PQ31044-1-2	LOCK LEVER
		63B	PQM30001-223	TENSION SPRING
		63C	PQM30001-211	TENSION SPRING
		67	PQM30017-28	SLIT WASHER, X2
		68	PQ42006B	PINCH ROLLER ARM ASSY
		69	PQM30017-28	SLIT WASHER
		70	Q03093-833	WASHER
		71	PQM30001-229	TENSION SPRING
		72	PQ42013B-4	GUIDE ARM ASSY
		72A	PQ42029	SPRING
		74	PQM30017-6	SLIT WASHER
		75	PQ42019B-6	MAIN BRAKE ASSY(SUPPLY)
		76	PQ42020B	MAIN BRAKE ASSY(TAKE-UP)
		77	PQM30001-216	TENSION SPRING
		78	PQ42021A-3	SUB BRAKE ASSY(SUPPLY)
		78A	PQ42023-1-2	TENSION SPRING
		80	PQ42037A-2	SUB BRAKE ASSY(TAKE-UP)
		81	PQM30017-6	SLIT WASHER
		82	PU59925-1-1	LED HOLDER
		83	SPST2606Z	SCREW
		84	SPST2606Z	SCREW
		85	PU60444	SLIDE SWITCH
		86	SDSP2610Z	SCREW
		87	SDSP2606Z	SCREW,X3
		88	SDST2606Z	TAPPING SCREW
		89	PQ42979A-2	HALF LOADING ARM ASSY
		90	PQM30017-29	SLIT WASHER
		91	PQ42974A	SLIDE CAM PLATE ASSY
		91A	PQM30001-224	SPRING
		93	PQ31677	HALF LOADING CAM
		94	PQ42963	SECOND GEAR
		95	PQM30017-24	SLIT WASHER,X2
		98	PQ43295A-1	MOTOR BRAKE ASSY
		98A	PQ43296	SPRING

SECTION 5
PARTS LIST

# ⚠ REF. NO.	PART NO.	PART NAME, DESCRIPTION
	POWER TRANSFORMER BOARD ASSEMBLY <01>	
	PU59499-2	BUS WIRE
PWBA	PB20256A-02	SWITCH REG BOARD ASSEMBLY
IC1	STR10006	IC
D1	10E6	DIODE
D2	10E6	DIODE
D3	10E6	DIODE
D4	10E6	DIODE
D5	RU1A	FR DIODE
D6	RU1A	FR DIODE
D7	AU01Z	FR DIODE
D8	AU01Z	FR DIODE
D9	AU01Z	FR DIODE
D20	AU01Z	FR DIODE
D21	F6P20F	FR DIODE
OR	FML-12S	FR DIODE
D22	AU01Z	FR DIODE
D23	F6P20F	FR DIODE
OR	FML-12S	FR DIODE
D24	RD8.2EB2	ZENER DIODE
D25	HZS39EB4TJ	ZENER DIODE
R1	QRZ0078-2R2	W.W.RESISTOR
R2	QRD161J-334	RESISTOR
R3	QRD161J-334	RESISTOR
R4	QRG029J-104	OMF RESISTOR
R5	QRG029J-201	OMF RESISTOR
R6	QRZ0078-R39	WW RESISTOR
R7	QRD161J-563	RESISTOR
R8	QRD161J-563	RESISTOR
R9	QVZ3507-101	V RESISTOR
R20	QRD161J-822	RESISTOR
R21	QRD161J-333	RESISTOR
R22	QRZ0077-100X	FUSIBLE RESISTOR
⚠ C1	QFZ9022-333	MM CAPACITOR
⚠ C2	QFZ9022-223	MM CAPACITOR
⚠ C4	QCZ9016-222M	CAPACITOR
⚠ C5	QCZ9016-222M	CAPACITOR
⚠ C6	QCZ9016-222M	CAPACITOR
⚠ C7	QCZ9016-222M	CAPACITOR
⚠ C8	QCZ9016-222M	CAPACITOR
C9	QEZ0128-107	E CAPACITOR
C10	QCY53AK-472	CAPACITOR
C11	QFV41HJ-474	M CAPACITOR
C12	QFL41HJ-222	M CAPACITOR
C13	QEZ0108-187Z	E CAPACITOR
C14	QED61HM-105	E CAPACITOR
⚠ C15	QCZ9016-222M	CAPACITOR
⚠ C16	QCZ9016-222M	CAPACITOR
C17	QCY43AK-121	CAPACITOR
C20	QEZ0104-476Z	E CAPACITOR

# ⚠ REF. NO.	PART NO.	PART NAME, DESCRIPTION
C21	QETC1JM-106	E CAPACITOR
C22	QETC1HM-106	E CAPACITOR
C23	QEZ0125-228	E CAPACITOR
C24	QETB1EM-228	E CAPACITOR
C25	QEZ0104-476Z	E CAPACITOR
C26	QETC1JM-106	E CAPACITOR
C27	QEZ0106-338	E CAPACITOR
C28	QETB1AM-228	E CAPACITOR
C29	QFL41HJ-102	M CAPACITOR
C30	QFL41HJ-102	M CAPACITOR
L20	PU48530-330K	PEAKING COIL
L21	PU59701-330	CHOKE COIL
L22	PU48530-330K	PEAKING COIL
L23	PU59701-330	CHOKE COIL
L24	PU48530-8R2K	CHOKE COIL
L25	PU48530-8R2K	CHOKE COIL
⚠ POC1	QMP3980-200	POWER CORD
⚠ T1	PU60720	SW.TRANS
⚠ BKT1	PQ31670-1-1	TRANS BRACKET
⚠ CL1	PU57505	FUSE CLIP, X2
⚠ HD1	QHS3771-108	STRAIN RELIEF
HS1	PQ43642	HEAT SINK, FOR IC1
HS2	PQ43666	HEAT SINK, FOR D21,D23
⚠ LF1	PU60347	LINE FILTER
SCW1	SDSA3006Z	SCREW, FOR BKT1
SCW2	DPSP3008Z	SCREW, FOR IC1
SCW3	DPSP3008Z	SCREW, X2, FOR D21,D23
SLD1	PQ32464	SHIELD CASE (1)
SLD2	PQ32483	SHIELD CASE (2)
SLD3	PU60766	INSULATOR
CN1	PU58844-6	CAP HOUSING
CN2	PU58844-6R	CAP HOUSING
⚠ F1	QMF51E2-1R0	FUSE
	MAIN BOARD ASSEMBLY <03>	
PWBA	PB10125B1-02	MAIN BOARD ASSEMBLY
⚠ RF1	PU59980M-4	RF CONVERTER/MIX BOOSTER
TB1	PU60192M	CONNECTOR BOARD
WR1	PW30401-AB20T	COAXIAL CORD
OR	PW30401-AB20S	COAXIAL CORD
	—AUDIO SECTION—	
IC1	LA7295	IC

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		Q1	2SC1740S(RS)	TRANSISTOR
		Q2	2SC1740S(RS)	TRANSISTOR
		Q3	2SC1740S(RS)	TRANSISTOR
		Q4	DTA124ES	TRANSISTOR
		Q5	DTA114ES	TRANSISTOR
		Q6	DTA124ES	TRANSISTOR
		Q7	2SC1740S(RS)	TRANSISTOR
		D1	1SS133	DIODE
		OR	MA165	DIODE
		D2	1SS133	DIODE
		OR	MA165	DIODE
		D3	UZ5.1BSB	ZENER DIODE
		OR	RD5.1ES-T1B2	ZENER DIODE
		OR	HZS5.1EB2	ZENER DIODE
		R1	QRD161J-473	RESISTOR
		R2	QRD161J-473	RESISTOR
		R7	QRD161J-332	RESISTOR
		R8	QRD161J-682	RESISTOR
		R9	QRD161J-332	RESISTOR
		R10	QRD161J-102	RESISTOR
		R11	QRD161J-223	RESISTOR
		R12	QRD161J-222	RESISTOR
		R13	QRD161J-102	RESISTOR
		R14	QRD161J-102	RESISTOR
		R15	QRD161J-102	RESISTOR
		R16	QRD161J-153	RESISTOR
		R17	QRD161J-103	RESISTOR
		R18	QRD161J-153	RESISTOR
		R19	QRD161J-103	RESISTOR
		R20	QRD161J-153	RESISTOR
		R24	QRD161J-333	RESISTOR
		R25	QRD161J-820	RESISTOR
		R26	QRD161J-153	RESISTOR
		R27	QRD161J-392	RESISTOR
		R28	QRD161J-8R2	RESISTOR
		R29	QRD161J-103	RESISTOR
		R31	QRD161J-181	RESISTOR
		R32	QRD161J-224	RESISTOR
		R33	QRD161J-103	RESISTOR
		R34	QRD161J-395	RESISTOR
		R35	QRD161J-395	RESISTOR
		R36	QRD161J-822	RESISTOR
		R37	QRD161J-273	RESISTOR
		R38	QRD161J-6R8	RESISTOR
		R39	QRD161J-153	RESISTOR
		R40	QRD161J-100	RESISTOR
		R42	QVZ3518-473AZ	V RESISTOR
		OR	QVZ3523-473AZ	V RESISTOR
		R44	QRD162J-153	RESISTOR
		R45	QRD161J-472	RESISTOR
		R46	QRD161J-475	RESISTOR
		R47	QRD161J-822	RESISTOR
		R48	QRD161J-153	RESISTOR
		C1	QETC1HM-105	E CAPACITOR
		C2	QETC1CM-476	E CAPACITOR
		C4	QETC1HM-105	E CAPACITOR
		C5	QFV71HJ-273	M CAPACITOR
		C7	QETC1EM-335	E CAPACITOR
		C8	QCFB1EZ-223	CAPACITOR
		C9	QCC11EJ-222	CAPACITOR
		C11	PU60550-105	E CAPACITOR
		C14	QETC1AM-226	E CAPACITOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		C15	QCC11EJ-103	CAPACITOR
		C16	QETC1HM-105	E CAPACITOR
		C18	QCC11EJ-272	CAPACITOR
		C19	QETC1CM-106	E CAPACITOR
		C20	QCBB1HJ-331	CAPACITOR
		C21	QFV71HJ-473	M CAPACITOR
		C22	QETC1CM-106	E CAPACITOR
		C23	QCC11EJ-272	CAPACITOR
		C24	QCC11EJ-392	CAPACITOR
		C30	QCSB1HJ-470	CAPACITOR
		L1	PU58308-822J	COIL
		L2	PU60281-4	FERRITE BEADS
		T1	PU60510-2	OSC TRANSFORMER
		TP31	PU57545	TEST PIN, X3(31,32,33)
			--LUMINANCE SECTION--	
		IC101	PB20166C	Y.MODULE ASSY.
		IC102	MSM6967RS	IC
		IC103	BX6385	IC
		Q101	2SC1740S(QRS)	TRANSISTOR
		Q102	2SC1740S(QRS)	TRANSISTOR
		Q103	2SA933S(RS)	TRANSISTOR
		Q104	2SC1740S(QRS)	TRANSISTOR
		Q106	DTC124ES	TRANSISTOR
		Q107	2SB810H,J	TRANSISTOR
		Q108	2SA933S(RS)	TRANSISTOR
		Q251	2SC1740S(QRS)	TRANSISTOR
		Q252	DTC124ES	TRANSISTOR
		D101	1SS133	DIODE
		OR	MA165	DIODE
		D103	1SS133	DIODE
		OR	MA165	DIODE
		D104	RD9.1ES-T1B2	ZENER DIODE
		OR	UZ9.1BSB	ZENER DIODE
		D105	1SS133	DIODE
		OR	MA165	DIODE
		D106	1SS292	DIODE
		D107	1SS133	DIODE
		OR	MA165	DIODE
		D108	1SS133	DIODE
		OR	MA165	DIODE
		D109	1SS133	DIODE
		OR	MA165	DIODE
		D110	1SS133	DIODE
		OR	MA165	DIODE
		D111	1SS133	DIODE
		OR	MA165	DIODE
		D112	1SS133	DIODE
		OR	MA165	DIODE
		D122	1SS133	DIODE
		OR	MA165	DIODE
		D123	1SS133	DIODE
		OR	MA165	DIODE
		D124	1SS133	DIODE
		D125	1SS133	DIODE
		D251	1SS133	DIODE
		OR	MA165	DIODE

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		D252	1SS133	DIODE
		OR	MA165	DIODE
		D253	1SS133	DIODE
		OR	MA165	DIODE
		D254	1SS133	DIODE
		OR	MA165	DIODE
		R101	QRD161J-563	RESISTOR
		R102	QRD161J-182	RESISTOR
		R103	QRD161J-333	RESISTOR
		R104	QRD161J-333	RESISTOR
		R105	QRD161J-102	RESISTOR
		R106	QRD161J-681	RESISTOR
		R107	QRD161J-331	RESISTOR
		R108	QRD161J-103	RESISTOR
		R109	QRD161J-273	RESISTOR
		R110	QRD161J-222	RESISTOR
		R111	QRD161J-102	RESISTOR
		R112	QVZ3518-222	V RESISTOR
		OR	QVZ3523-222	V RESISTOR
		R113	QRD161J-222	RESISTOR
		R114	QRD161J-102	RESISTOR
	△	R115	QRD161J-181	RESISTOR
		R116	QRD161J-750	RESISTOR
		R117	QRD161J-562	RESISTOR
		R120	QRD161J-333	RESISTOR
		R121	QRD161J-561	RESISTOR
		R122	QRD161J-183	RESISTOR
		R123	QRD161J-102	RESISTOR
		R124	QRD161J-101	RESISTOR
		R127	QVZ3518-332AZ	V RESISTOR
		OR	QVZ3523-332AZ	V RESISTOR
		R128	QRD161J-102	RESISTOR
		R129	QRD161J-681	RESISTOR
		R130	QRD161J-103	RESISTOR
		R131	QRD161J-221	RESISTOR
		R132	QRD161J-222	RESISTOR
		R133	QRD161J-221	RESISTOR
		R134	QRD161J-750	RESISTOR
		R136	QRD161J-101	RESISTOR
		R141	QRD161J-223	RESISTOR
		R142	QRD161J-393	RESISTOR
		R143	QRD161J-102	RESISTOR
		R145	QRD161J-222	RESISTOR
		R146	QRD161J-152	RESISTOR
		R147	QRD161J-101	RESISTOR
		R251	QRD161J-273	RESISTOR
		R253	QRD161J-223	RESISTOR
		R254	QRD161J-223	RESISTOR
		C101	QCVB1CN-103	CAPACITOR
		C102	QCVB1CN-103	CAPACITOR
		C105	QCBB1HJ-121	CAPACITOR
		C106	QCBB1HJ-121	CAPACITOR
		C108	QCSB1HJ-220	CAPACITOR
		C109	QCBB1HJ-151	CAPACITOR
		C110	QCBB1HJ-102	CAPACITOR
		C111	QETC1EM-335	E CAPACITOR
		C112	QCSB1HJ-120	CAPACITOR
		C113	QETC1AM-226	E CAPACITOR
		C114	QEN61HM-225	NP E CAPACITOR
		C115	QEN61AM-226	NP E CAPACITOR
		C116	QETC1EM-475	E CAPACITOR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		C117	QETC1HM-104	E CAPACITOR
		C118	QCVB1CN-103	CAPACITOR
		C119	QCVB1CN-103	CAPACITOR
		C120	QETC1EM-475	E CAPACITOR
		C121	QCSB1HJ-120	CAPACITOR
		C122	QCVB1CN-103	CAPACITOR
		C123	QETC0JM-476	E CAPACITOR
		C124	QETC1AM-476	E CAPACITOR
		C125	QCVB1CN-103	CAPACITOR
		C126	QCVB1CN-103	CAPACITOR
		C127	QCVB1CN-103	CAPACITOR
		C128	QCSB1HJ-470	CAPACITOR
		C129	QETC0JM-476	E CAPACITOR
		C130	QCVB1CN-103	CAPACITOR
		C131	QETC0JM-337	E CAPACITOR
		C132	QCVB1CN-103	CAPACITOR
		C133	QCVB1CN-103	CAPACITOR
		C134	QCBB1HJ-102	CAPACITOR
		C135	QCBB1HJ-102	CAPACITOR
		C136	QETC1HM-224	E CAPACITOR
		C138	QEN61EM-335	NP E CAPACITOR
		C139	QETC0JM-477	E CAPACITOR
		C140	QETC0JM-476	E CAPACITOR
		C141	QETC1CM-476	E CAPACITOR
		C142	QETC1CM-106	E CAPACITOR
		C202	QCVB1CN-103	CAPACITOR
		C203	QEK60JM-107	E CAPACITOR
		C205	QEK61HM-105	E CAPACITOR
		C251	QETC1AM-476	E CAPACITOR
		C252	QCVC1CN-103	CAPACITOR
		C253	QCBB1HJ-102	CAPACITOR
		C254	QETA1CM-476	E CAPACITOR
		L102	PU59152-221J	PEAKING COIL
		L103	PU59152-560J	PEAKING COIL
		L105	PU59152-121J	PEAKING COIL
		L106	PU48530-101K	PEAKING COIL
		L107	PU59152-101J	PEAKING COIL
		L108	PU48530-101K	PEAKING COIL
		L109	PU48530-101K	PEAKING COIL
		L110	PU59152-680J	PEAKING COIL
		L111	PU48530-101K	PEAKING COIL
		L112	PU48530-101K	PEAKING COIL
		L113	PU48530-101K	PEAKING COIL
		L114	PU48530-101K	PEAKING COIL
		L115	PU59152-180J	PEAKING COIL
		L251	PU48530-101K	PEAKING COIL
		L252	PU59152-100J	PEAKING COIL
		EQ101	PU60162	EQUALIZER
		EQ102	PU54838	EQUALIZER
		OR	PU60714	EQUALIZER
		LPF101	PU60161	LOW PASS FILTER
		OR	PU60716	LOW PASS FILTER
		LPF102	PU58021-2	LOW PASS FILTER
		OR	PU58021-3	LOW PASS FILTER
		SLD1	PQ42994	SHIELD PLATE
		SLD2	PQ42995	SHIELD CASE
		SLD3	PQ42996	SHIELD COVER

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		TP106	PU57545	TEST PIN,X,(106.110,121,GND)
		CN107	PU58844-2	CAP HOUSING
			—MAIN SUB BOARD SECTION—	
		PWBA	PB30079A-01	MAIN SUB BOARD ASSEMBLY
		Q271	2SC1740S(QRS)	TRANSISTOR
		Q272	DTC144ES	TRANSISTOR
		Q273	DTC144ES	TRANSISTOR
		D271	1SS133	DIODE
		OR	MA165	DIODE
		D272	1SS133	DIODE
		OR	MA165	DIODE
		R271	QRD161J-394	RESISTOR
		R272	QRD161J-104	RESISTOR
		R273	QRD161J-103	RESISTOR
		R274	QRD161J-562	RESISTOR
		R275	QRD161J-223	RESISTOR
		R276	QRD161J-182	RESISTOR
		R277	QRD161J-682	RESISTOR
		C271	QCVB1CN-103	CAPACITOR
		C272	QEN60JM-336	NP E CAPACITOR
		SPC1	PQM30029-107	SPACER
		TML1	PU59935-10	TERMINAL
			—COLOR SECTION—	
		IC301	PB20227A	COLOR MODULE ASSY
		IC351	BA7106LS	IC
		Q301	2SC1740S(RS)	TRANSISTOR
		Q302	2SC1740S(RS)	TRANSISTOR
		Q303	2SC1740S(RS)	TRANSISTOR
		Q305	DTC124ES	TRANSISTOR
		Q306	2SA933S(RS)	TRANSISTOR
		Q307	2SC1740S(RS)	TRANSISTOR
		Q308	2SC1740S(RS)	TRANSISTOR
		Q309	2SA933S(RS)	TRANSISTOR
		Q351	DTC124ES	TRANSISTOR
		D302	1SS133	DIODE
		OR	MA165	DIODE
		D303	1SS133	DIODE
		OR	MA165	DIODE
		D351	1SS133	DIODE
		OR	MA165	DIODE
		D352	1SS133	DIODE
		OR	MA165	DIODE
		D353	1SS133	DIODE
		OR	MA165	DIODE
		R301	QRD161J-102	RESISTOR
		R302	QRD161J-102	RESISTOR
		R303	QRD161J-473	RESISTOR
		R304	QRD161J-272	RESISTOR
		R305	QRD161J-222	RESISTOR
		R306	QRD161J-102	RESISTOR
		R307	QRD161J-102	RESISTOR
		R312	QRD161J-391	RESISTOR
		R313	QRD161J-102	RESISTOR
		R314	QRD161J-223	RESISTOR
		R315	QRD161J-102	RESISTOR
		R316	QRD161J-183	RESISTOR
		R317	QRD161J-102	RESISTOR
		R318	QRD161J-102	RESISTOR
		R319	QRD161J-331	RESISTOR
		R320	QRD161J-222	RESISTOR
		R321	QVZ3518-681AZ	V RESISTOR
		OR	QVZ3523-681AZ	V RESISTOR
		R322	QRD161J-153	RESISTOR
		R323	QRD161J-103	RESISTOR
		R324	QRD161J-222	RESISTOR
		R325	QRD161J-391	RESISTOR
		R326	QRD161J-471	RESISTOR
		R327	QRD161J-821	RESISTOR
		R331	QRD161J-333	RESISTOR
		R332	QRD161J-333	RESISTOR
		R333	QRD161J-152	RESISTOR
		R334	QRD161J-102	RESISTOR
		R335	QRD161J-393	RESISTOR
		R336	QRD161J-332	RESISTOR
		R337	QRD161J-102	RESISTOR
		R351	QRD161J-914	RESISTOR
		R352	QRD161J-104	RESISTOR
		R353	QRD161J-103	RESISTOR
		R354	QRD161J-273	RESISTOR
		R355	QRD161J-223	RESISTOR
		R356	QRD161J-333	RESISTOR
		C301	QCVB1CN-103	CAPACITOR
		C302	QCB81HJ-820	CAPACITOR
		C303	QCVB1CN-103	CAPACITOR
		C305	QCC31CJ-473	CAPACITOR
		C306	QCSB1HJ-470	CAPACITOR
		C311	QFN31HJ-224	M CAPACITOR
		C312	QFN31HJ-563	M CAPACITOR
		C313	QETC0JM-337	E CAPACITOR
		C314	QETC1HM-105	E CAPACITOR
		C315	QETC1HM-104	E CAPACITOR
		C316	QCVB1CN-103	CAPACITOR
		C317	QETC1HM-474	E CAPACITOR
		C318	QETC1CM-106	E CAPACITOR
		C319	QETC0JM-107	E CAPACITOR
		C320	QCVB1CN-103	CAPACITOR
		C321	QCVB1CN-103	CAPACITOR
		C323	QCVB1CN-103	CAPACITOR
		C324	QETC1HM-475	E CAPACITOR
		C325	QCVB1CN-103	CAPACITOR
		C332	QCC31CJ-223	CAPACITOR
		C351	QETC1CM-106	E CAPACITOR
		C352	QETC1HM-335	E CAPACITOR
		C353	QCB81HJ-471	CAPACITOR
		C354	QCVB1CN-103	CAPACITOR
		C355	QCVB1CN-103	CAPACITOR
		C356	QCVB1CN-103	CAPACITOR
		C357	QCVB1CN-103	CAPACITOR
		C358	QCVB1CN-103	CAPACITOR
		C359	QETB0JM-477	E CAPACITOR
		C360	QCSB1HJ-200	CAPACITOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		C361	QCSB1HK-4R7	CAPACITOR
		C362	QCXB1CN-472	CAPACITORCF
		C363	QCSB1HJ-270	CAPACITOR
		C364	QFN31HJ-471	M CAPACITOR
		L301	PU54710-222	PEAKING COIL
		L302	PU48530-271J	PEAKING COIL
		L303	PU59153-822J	PEAKING COIL
		L304	PU48530-181J	INDUCTOR
		L305	PU59152-150J	PEAKING COIL
		L351	PU48530-101K	PEAKING COIL
		L352	PU59152-330J	PEAKING COIL
		L353	PU60655	COIL
		EQ301	PU53501-6	EQUALIZER
		OR	PU53501-11	EQUALIZER
		LPF301	PU58022	LOW PASS FILTER
		BPF301	PU57072	BAND PASS FILTER
		BPF302	PU60654	BAND PASS FILTER
		CF301	PU57073	CERAMIC FILTER
		DL301	PU60340	COMB FILTER
		OR	PU58971-3	2H DELAY LINE
		OR	PU60490	COMB FILTER
		OR	PU60222	2H DELAY LINE
	⚠	X301	PU60653	CRYSTAL RESONATOR
		TP205	PU57545	TEST PIN, X3,(205,304,351)
		CN301	PU58844-2Y	CAP HOUSING
			—DIGITAL SWITCH BOARD ASSY—	
		PWBA	P840043A	DIGITAL SWITCH BOARD ASSEMBLY
		IC281	BA7021	IC
		Q281	2SC1740S(RS)	TRANSISTOR
		Q282	2SA933S(RS)	TRANSISTOR
		Q283	2SA933S(RS)	TRANSISTOR
		R281	QRD161J-821	RESISTOR
		R282	QRD161J-221	RESISTOR
		R283	QRD161J-331	RESISTOR
		R284	QRD161J-331	RESISTOR
		R285	QRD161J-222	RESISTOR
		C281	QEK61CM-476	E CAPACITOR
		C282	QCVB1CN-103	CAPACITOR
		C283	QEK61HM-105	E CAPACITOR
		L281	PU59152-101K	PEAKING COIL
		TML1	PU59935-09	TERMINAL
			—SERVO SECTION—	
		IC441	HD49722NT	IC
		IC471	BU2767S	IC
		IC472	BU4069UB	IC

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		Q401	DTC144ES	TRANSISTOR
		OR	2SC3399	TRANSISTOR
		OR	UN4213	TRANSISTOR
		Q406	DTA124ES	TRANSISTOR
		OR	UN4112	TRANSISTOR
		OR	2SA1346	TRANSISTOR
		D401	1SS133	DIODE
		OR	MA165	DIODE
		D402	1SS133	DIODE
		OR	MA165	DIODE
		D414	1SS133	DIODE
		OR	MA165	DIODE
		D423	1SS133	DIODE
		D424	1SS133	DIODE
		D425	1SS133	DIODE
		D426	1SS133	DIODE
		D427	1SS133	DIODE
		D441	1SS133	DIODE
		OR	MA165	DIODE
		D442	1SS133	DIODE
		OR	MA165	DIODE
		D443	1SS133	DIODE
		OR	MA165	DIODE
		D473	1SS133	DIODE
		OR	MA165	DIODE
		D474	1SS133	DIODE
		OR	MA165	DIODE
		R401	QRD161J-102	RESISTOR
		R405	QRD161J-273	RESISTOR
		R406	QRD161J-222	RESISTOR
		R407	QRD161J-332	RESISTOR
		R410	QRD161J-223	RESISTOR
		R414	QVZ3518-474AZ	V RESISTOR, SP X2
		OR	QVZ3523-474AZ	V RESISTOR, SP X2
		R427	QRD161J-103	RESISTOR
		R434	QRD161J-472	RESISTOR
		R435	QRD182J-472	RESISTOR
		R436	QRD161J-472	RESISTOR
		R441	QRD161J-682	RESISTOR
		R442	QRD161J-102	RESISTOR
		R443	QRD161J-155	RESISTOR
		R444	QRD161J-105	RESISTOR
		R445	QRD161J-102	RESISTOR
		R446	QRD161J-332	RESISTOR
		R448	QRD161J-475	RESISTOR
		R449	QRD161J-333	RESISTOR
		R450	QRD161J-562	RESISTOR
		R451	QRD161J-472	RESISTOR
		R452	QRD161J-182	RESISTOR
		R453	QRD161J-105	RESISTOR
		R454	QRD161J-273	RESISTOR
		R455	QRD161J-395	RESISTOR
		R456	QRD161J-105	RESISTOR
		R457	QRD161J-273	RESISTOR
		R458	QRD161J-274	RESISTOR
		R459	QRD161J-393	RESISTOR
		R460	QRD161J-475	RESISTOR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R461	QRD161J-334	RESISTOR
		R462	QRD161J-222	RESISTOR
		R463	QRD161J-102	RESISTOR
		R464	QRD161J-104	RESISTOR
		R465	QVZ3518-684AZ	V RESISTOR, SP SW P
		OR	QVZ3518-684	V RESISTOR, SP SW P
		R466	QRD161J-154	RESISTOR
		R467	QRD161J-103	RESISTOR
		R468	QRD161J-102	RESISTOR
		R469	QRD161J-102	RESISTOR
		R470	QRD161J-154	RESISTOR
		R472	QRD161J-104	RESISTOR
		R473	QRD161J-153	RESISTOR
		R474	QRD161J-822	RESISTOR
		R475	QRD161J-334	RESISTOR
		R476	QRD161J-684	RESISTOR
		R477	QRD161J-103	RESISTOR
		R478	QVZ3518-105AZ	V RESISTOR , SP SLOW
		OR	QVZ3518-105	V RESISTOR , SP SLOW
		R479	QRD161J-154	RESISTOR
		R480	QRD161J-274	RESISTOR
		R481	QRD161J-104	RESISTOR
		R482	QRD161J-472	RESISTOR
		R483	QRD161J-103	RESISTOR
		C402	QCB81HJ-102	CAPACITOR
		C406	QCC11CK-102	CAPACITOR
		C408	QFV71HJ-124	M CAPACITORCK
		C410	QFV71HJ-274	M CAPACITOR
		C441	QCC11CK-102	CAPACITOR
		C442	QETC1AM-226	E CAPACITOR
		C443	QETC1AM-226	E CAPACITOR
		C444	QCSB1HJ-150	CAPACITOR
		C445	QETC1HM-105	E CAPACITOR
		C446	QCC11CK-153	CAPACITOR
		C448	QCB81HJ-561	CAPACITOR
		C449	QCC11CK-102	CAPACITOR
		C450	QEK61HM-105	E CAPACITOR
		C451	QEK61AM-226	E CAPACITOR
		C452	QCB81HJ-101	CAPACITOR
		C453	QFV71HJ-394	M CAPACITOR
		C454	QFV71HJ-153	M CAPACITOR
		C455	QETC1EM-475	E CAPACITOR
		C456	QETB1EM-475	E CAPACITOR
		C457	QETC1CM-106	E CAPACITOR
		C458	QETC1CM-106	E CAPACITOR
		C459	QCC11CK-333	CAPACITOR
		C460	QFV71HJ-334	M CAPACITOR
		C461	QCB81HJ-471	CAPACITOR
		C462	QFL41HJ-682	M CAPACITOR
		C463	QCB81HJ-102	CAPACITOR
		C464	QFV71HJ-474	M CAPACITOR
		C471	QCC11CK-102	CAPACITOR
		C472	QFV71HJ-393	M CAPACITOR
		C473	QFV71HJ-393	M CAPACITOR
		C474	QFV71HJ-104	M CAPACITOR
		C475	QFV71HJ-124	M CAPACITOR
		C476	QFV71HJ-393	M CAPACITOR
		C477	QCB81HJ-121	CAPACITOR
		C478	QEK61AM-226	E CAPACITOR
		C479	QCB81HJ-101	CAPACITOR
		C480	QCB81HJ-101	CAPACITOR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		C481	QCB81HJ-561	CAPACITOR
		TP401	PU57545	TEST PIN,X,(401,404,411,GND)
			—MECHACON SECTION—	
		IC601	M50938-617SP	IC
		OR	M50938-619SP	IC
		IC602	TA8405S	IC
		IC603	M54647L	IC
		IC604	BA6222	IC
		Q601	2SC1740S(RS)	TRANSISTOR
		Q611	DTC144TS	TRANSISTOR
		D601	HZS4.3EB2	ZENER DIODE
		D602	MA165	DIODE
		OR	1SS133	DIODE
		D603	MA165	DIODE
		OR	1SS133	DIODE
		D604	MA165	DIODE
		OR	1SS133	DIODE
		D605	HZS7.5EB2	ZENER DIODE
		D606	MA165	DIODE
		OR	1SS133	DIODE
		D608	HZS7.5EB2	ZENER DIODE
		R602	QRD161J-332	RESISTOR
		R603	QRD161J-122	RESISTOR
		R604	QRD161J-823	RESISTOR
		R605	QRD161J-102	RESISTOR
		R606	QRD161J-102	RESISTOR
		R607	QRD161J-103	RESISTOR
		R608	QRD162J-103	RESISTOR
		R611	QRD161J-102	RESISTOR
		R612	QRD161J-472	RESISTOR
		R613	QRD161J-105	RESISTOR
		R614	QRD161J-472	RESISTOR
		R615	QRD161J-472	RESISTOR
		R616	QRD161J-472	RESISTOR
		R617	QRD161J-472	RESISTOR
		R618	QRD161J-472	RESISTOR
		R619	QRD162J-472	RESISTOR
		R620	QRD161J-472	RESISTOR
		R621	QRD161J-472	RESISTOR
		R622	QRD161J-333	RESISTOR
		R623	QRD161J-124	RESISTOR
		R624	QRD161J-124	RESISTOR
		R625	QRD161J-472	RESISTOR
		R626	QRD161J-472	RESISTOR
		R627	QRD161J-472	RESISTOR
		R628	QRD161J-472	RESISTOR
		R629	QRD161J-472	RESISTOR
		R630	QRD161J-821	RESISTOR
		R631	QRD161J-331	RESISTOR
		R632	QRD161J-822	RESISTOR
		R633	QRD161J-103	RESISTOR
		R634	QRD161J-103	RESISTOR
		R637	QRD161J-152	RESISTOR
		R638	QRD161J-471	RESISTOR
		R651	QRD161J-104	RESISTOR
		R652	QRD161J-0R0	RESISTOR
		R653	QRD161J-0R0	RESISTOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		RA601	QRB047J-103	RESISTOR ARRAY
		OR	QRB049J-103	RESISTOR ARRAY
		RA602	QRB047J-472	NETWORK RESISTOR
		OR	QRB049J-472	RESISTOR ARRAY
		C601	QCFB1EZ-223	CAPACITOR
		C602	QETC1EM-335	E CAPACITOR
		C603	QCFB1EZ-223	CAPACITOR
		C604	QETB1HM-105	E CAPACITOR
		C605	QETC1EM-106	E CAPACITOR
		C606	QETC1EM-106	E CAPACITOR
		C607	QETC1EM-475	E CAPACITOR
		C608	QCF11HP-223	CAPACITOR
		C609	QCC11CK-104	CAPACITOR
		L601	PU53223-R22G	PEAKING COIL
		CF601	PU60414	CERAMIC FILTER
		HD1	PU59934-15	WIRE HOLDER
		SCW1	S8SE3006Z	TAPPING SCREW, X2
		CN603	PU59555-10	CAP HOUSING
		CN604	PU59555-9	CAP HOUSING
		CN605	PU59555-5	CAP HOUSING
	⚠	CP602	ICP-F20	CIRCUIT PROTECTOR
			—REGULATOR SECTION—	
		IC801	STK5490	IC
		IC802	MC7805ACT	IC
		D801	MA165	DIODE
		OR	1SS133	DIODE
		R801	QRD161J-272	RESISTOR
		R802	QRD161J-272	RESISTOR
		R803	QRD161J-223	RESISTOR
		C801	QETC1CM-107	E CAPACITOR
		C802	QETC1CM-107	E CAPACITOR
		C803	QETB1CM-107	E CAPACITOR
		C804	QETC0JM-107	E CAPACITOR
		C805	QETC1EM-106	E CAPACITOR
		C807	QETC0JM-107	E CAPACITOR
	⚠	HS1	PQ32206	HEAT SINK, FOR IC
	⚠	HS2	PU60786	HEAT SINK, FOR IC802
		SCW1	SDSB3014Z	TAPPING SCREW, X2
		SCW2	SDSB3010Z	SCREW, X2
		SCW3	SDSB3008Z	TAPPING SCREW, FOR IC802
		CP802	ICP-F25	CIRCUIT PROTECTOR0000120.00GC
		CP803	ICP-F38	CIRCUIT PROTECTOR0000120.00GC
		CP804	ICP-F25	CIRCUIT PROTECTOR0000120.00GC

IF BOARD ASSEMBLY <07>

		PWBA	PB10047A	IF BOARD ASSEMBLY

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		IC1	M51365SP	IC
		Q2	2SC3354	TRANSISTORAF
		Q3	2SC1317(RS)	TRANSISTOR
		Q4	2SC1740(RS)	TRANSISTOR
		OR	2SC536SPA(FG)	TRANSISTOR
		OR	2SC3311A(RS)	TRANSISTOR
		Q5	2SC1740(RS)	TRANSISTOR
		OR	2SC536SPA(FG)	TRANSISTOR
		OR	2SC3311A(RS)	TRANSISTOR
		Q6	2SA933S(RS)	TRANSISTOR
		OR	2SA1309AR,S	TRANSISTOR
		Q7	2SC1740(RS)	TRANSISTOR
		OR	2SC3311A(RS)	TRANSISTOR
		OR	2SC536SPA(FG)	TRANSISTOR
		Q9	2SD1450S,T	TRANSISTOR
		OR	2SD1468S(RSE)	TRANSISTOR
		Q11	2SC1740(RS)	TRANSISTOR
		OR	2SC3311A(RS)	TRANSISTOR
		OR	2SC536SPA(FG)	TRANSISTOR
		Q12	DTC144ES	TRANSISTOR
		OR	2SC3399	TRANSISTOR
		OR	UN4213	TRANSISTOR
		Q13	DTC144ES	TRANSISTOR
		OR	UN4213	TRANSISTOR
		OR	2SC3399	TRANSISTOR
		D1	MTZ10B	ZENER DIODE
		D6	1SS133	DIODE
		D7	1SS133	DIODE
		D8	1SS133	DIODE
		R1	NRD718J-750NBU	RESISTOR
		R4	NRD718J-392NBU	RESISTOR
		R6	NRD718J-182NBU	RESISTOR
		R8	NRD718J-681NBU	RESISTOR
		R10	NRD718J-271NBU	RESISTOR
		R11	NRD718J-180NBU	RESISTOR
		R15	NRD718J-271NBU	RESISTOR
		R17	NRD718J-562NBU	RESISTOR
		R18	NRD718J-332NBU	RESISTOR
		R19	NRD718J-272NBU	RESISTOR
		R20	NRD718J-222NBU	RESISTOR
		R21	QVZ3518-472	V RESISTOR
		OR	QVZ3523-472	V RESISTOR
		R22	NRD718J-824NBU	RESISTOR
		R24	NRD718J-821NBU	RESISTOR
		R25	NRD718J-471NBU	RESISTOR
		R29	NRD718J-681NBU	RESISTOR
		R30	NRD718J-331NBU	RESISTOR
		R31	NRD718J-332NBU	RESISTOR
		R32	NRD718J-103NBU	RESISTOR
		R34	NRD718J-470NBU	RESISTOR
		R35	NRD718J-561NBU	RESISTOR
		R36	NRD718J-561NBU	RESISTOR
		R37	NRD718J-271NBU	RESISTOR
		R38	NRD718J-182NBU	RESISTOR
		R39	NRD718J-272NBU	RESISTOR
		R40	QVZ3518-103	V RESISTOR
		OR	QVZ3523-103	V RESISTOR
		R41	NRD718J-222NBU	RESISTOR
		R45	NRD718J-471NBU	RESISTOR
		R46	NRD718J-104NBU	RESISTOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R47	NRD718J-153NBU	RESISTOR
		R48	NRD718J-392NBU	RESISTOR
		R49	NRD718J-103NBU	RESISTOR
		R50	NRD718J-471NBU	RESISTOR
		R51	NRD718J-223NBU	RESISTOR
		R52	NRD718J-223NBU	RESISTOR
		R53	NRD718J-103NBU	RESISTOR
		R54	NRD718J-682NBU	RESISTOR
		R56	NRD718J-222NBU	RESISTOR
		R57	NRD718J-153NBU	RESISTOR
		R82	NRD718J-680NBU	RESISTOR
		R83	NRD718J-222NBU	RESISTOR
		R84	NRD718J-123NBU	RESISTOR
		R85	NRD718J-123NBU	RESISTOR
		R86	NRD718J-331NBU	RESISTOR
		R87	NRD718J-222NBU	RESISTOR
		R88	NRD718J-103NBU	RESISTOR
		R100	QRD162J-0R0	RESISTOR
		R101	QRD161J-182	RESISTOR
		R102	QRD161J-222	RESISTOR
		C5	NCB71HK-102NBR	CAPACITOR
		C6	NCX71CM-222NBR	CAPACITOR
		C7	NCB71HK-102NBR	CAPACITOR
		C8	NCB71HK-102NBR	CAPACITOR
		C10	QETC1CM-336	E CAPACITOR
		C11	NCY71CM-103NBR	CAPACITOR
		C13	NCX71CM-222NBR	CAPACITOR
		C14	PU57601-474MEZ	E CAPACITOR
		C15	QETC1CM-336	E CAPACITOR
		C16	NCX71CM-222NBR	CAPACITOR
		C17	NCF71EZ-223NBR	CAPACITOR
		C19	NCY71CM-103NBR	CAPACITOR
		C20	NCS71HJ-100NBR	CAPACITOR
		C22	QETC1HM-105	E CAPACITOR
		C23	QCC11EK-223	CAPACITOR
		C24	QETC1HM-105	E CAPACITOR
		C25	NCX71CM-222NBR	CAPACITOR
		C27	QETC1HM-474	E CAPACITOR
		C29	NCS71HJ-470NBR	CAPACITOR
		C31	QETC1HM-335	E CAPACITOR
		C32	NCF71EZ-223NBR	CAPACITOR
		C33	QETC1HM-474	E CAPACITOR
		C50	QETC1CM-336	E CAPACITOR
		C56	QETC1CM-336	E CAPACITOR
		C57	QEN61CM-336	NP E CAPACITOR
		C58	NCS71HJ-100NBR	CAPACITOR
		L2	PU60025-1R2	PEAKING COIL
		L3	PU60025-1R5	PEAKING COIL
		L4	PU59152-150J	PEAKING COIL
		L5	PU59152-220J	PEAKING COIL
		L6	PU59152-6R8K	PEAKING COIL
		L7	PU59152-R22K	PEAKING COIL
		T2	PU60497	IF.TRANSFORMER, VCO
		T5	PU60046	IF.TRANSFORMER, SYNC
		CF1	PU57707-2	CERAMIC FILTER
		CF2	PU59242-2	CERAMIC FILTER
		CF3	PU32990-2	CERAMIC FILTER

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		SAW1	PU35557-7	SAW FILTER
		TML1	PU59935-16	TERMINAL

TUNER CTL BOARD ASSSEMBLY <08>

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		PWBA	PB20102A-01	TUNER CTL BOARD ASSEMBLY
	⚠	TNR1	PU36155-1-4	UHF/VHF TUNER
		IC1	M50445-398SP	IC
		IC2	MSM16811RS	IC
		OR	CAT93C46P	IC
		Q1	2SC1740S(RS)	TRANSISTOR
		OR	2SC3311A(RS)	TRANSISTOR
		OR	2SC536SPA(FG)	TRANSISTOR
		Q2	2SK381(C)	FE TRANSISTOR
		Q3	UN4319VI	TRANSISTOR
		Q4	UN4319VI	TRANSISTOR
		Q5	UN4319VI	TRANSISTOR
		Q6	UN4319VI	TRANSISTOR
		Q7	DTA124ES	TRANSISTOR
		Q8	2SB810H,J	TRANSISTOR
		Q10	2SD1863(QR)	TRANSISTOR
		OR	2SC3243D,E	TRANSISTOR
		D1	1SS133	DIODE
		D2	E-452-2-T2	DIODE
		D3	HZ30-2	ZENER DIODE
		D4	RD5.6ES-T1B3	ZENER DIODE
		OR	MTZ5.6CT-77	ZENER DIODE
		D5	1SS133	DIODE
		R3	QRD161J-472	RESISTOR
		R4	QRD161J-472	RESISTOR
		R5	QRD161J-104	RESISTOR
		R6	QRD161J-472	RESISTOR
		R7	QRD161J-103	RESISTOR
		R8	QRD161J-472	RESISTOR
		R11	QRD161J-103	RESISTOR
		R12	QRD161J-121	RESISTOR
		R13	QRD161J-152	RESISTOR
		R14	QRD161J-562	RESISTOR
		R15	QRD161J-472	RESISTOR
		R16	QRD161J-472	RESISTOR
		R17	QRD161J-153	RESISTOR
		R18	QRD161J-101	RESISTOR
		R19	QRD161J-103	RESISTOR
		R20	QRD161J-104	RESISTOR
		R22	QRD161J-104	RESISTOR
		R26	QRD161J-104	RESISTOR
		R32	QRD161J-222	RESISTOR
		R34	QRD161J-103	RESISTOR
		R35	QRD161J-102	RESISTOR
		R36	QRD161J-103	RESISTOR
		R40	QRD161J-102	RESISTOR
		R45	QRD161J-103	RESISTOR
		R46	QRD161J-103	RESISTOR
		R47	QRD161J-103	RESISTOR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R48	QRD161J-103	RESISTOR
		RA1	QRB047J-104	NETWORK RESISTOR
		C2	QCBB1HK-102	CAPACITOR
		C3	QETC1CM-107	E CAPACITOR
		C4	QETC1CM-106	E CAPACITOR
		C5	QETC1CM-106	E CAPACITOR
		C6	QETC1HM-225	E CAPACITOR
		C7	QETC1CM-106	E CAPACITOR
		C8	QCBB1HK-102	CAPACITOR
		C9	QETC1CM-106	E CAPACITOR
		C13	QFN31HJ-153	M CAPACITOR
		C14	QFV81HJ-474	M CAPACITOR
		OR	QFZ9011-474	MM CAPACITOR
		C15	QETC1HM-106	E CAPACITOR
		C16	QCBB1HK-102	CAPACITOR
		C17	QCVB1CM-103	CAPACITOR
		C18	QCT25CH-220	CAPACITOR
		C19	QCT25CH-270	CAPACITOR
		C20	PU57601-335MCZ	E CAPACITOR
		C23	QETC1CM-106	E CAPACITOR
		C24	QETC1AM-107	E CAPACITORCE
		C25	QETC1AM-336	E CAPACITOR
		C30	QEK61HM-475	E CAPACITOR
		C31	QCVB1CM-103	CAPACITOR
		L1	PU59152-R22K	PEAKING COIL
		L2	PU59152-100J	PEAKING COIL
		L7	PU59152-1R0K	PEAKING COIL
		L8	PU59152-1R0K	PEAKING COIL
		L9	PU59152-2R7J	PEAKING COIL
	△	X1	PU58554-2	CRYSTAL RESONATOR, 4.0M
		J3	QWE211-04A2A2	WIRE
		WR1	PW30401-AE10S	COAXIAL CORD, X2
		CN2	PU58844-9	CAP HOUSING
		CN3	PU58844-2	CAP HOUSING
		CN4	PU59555-7	CAP HOUSING
	△	CP1	ICP-F10	CIRCUIT PROTECTOR

AUDIO/CONTROL HEAD BOARD <12>

		PWBA	PB40029	A/C HEAD BOARD ASSEMBLY

DIGITAL BOARD ASSSEMBLY <15> <50>

—DIGITAL IC BOARD SECTION <15>—

		PWBA	PB10117B-02	DIGITAL BOARD ASSEMBLY
		IC6	M50747-623FP	IC
		OR	M50747E-899FP	IC06
		IC7	M65011FP-E	IC
	△	IC8	M52678FP	IC
	△	IC9	M52678FP	IC
		IC10	M5M4C500L-10	IC
		IC11	M5M4C500L-10	IC
		IC12	M5M4C500L-10	IC
		IC13	M52679FP	IC
		IC14	M52679FP	IC
		IC15	M52679FP	IC
		IC16	UPD74HC00G	IC
		IC17	UPC393C	IC
		IC18	TC74HC02F	IC
		OR	TC74HC02AF	IC18
		IC19	TC74HC02F	IC
		OR	TC74HC02AF	IC19
		Q2	2SA1037K(RS)	TRANSISTOR
		Q3	2SC2412K(RS)	TRANSISTOR
		Q4	2SA1037K(RS)	TRANSISTOR
		Q5	DTC144EK	TRANSISTOR
		Q17	2SC2412K(RS)	TRANSISTOR
		D1	DAN202K	DIODE
		D2	DAN202K	DIODE
		D3	QRSA08J-0R0Y	RESISTOR
		D4	QRSA08J-0R0Y	RESISTOR
		D6	DAN202K	DIODE
		R1	QRSA08J-471YN	RESISTOR
		R2	QRSA08J-471YN	RESISTOR
		R3	QRSA08J-102YN	RESISTOR
		R4	QRSA08J-222YN	RESISTOR
		R5	QRSA08J-122YN	RESISTOR
		R6	QRSA08J-562YN	RESISTOR
		R7	QRSA08J-123YN	RESISTOR
		R8	QRSA08J-103YN	RESISTOR
		R9	QRD162J-221	RESISTOR
		R33	QRSA08J-222YN	RESISTOR
		R69	QRSA08J-103YN	RESISTOR
		R70	QRSA08J-103YN	RESISTOR
		R71	QRSA08J-102YN	RESISTOR
		R72	QRSA08J-331YN	RESISTOR
		R73	QVZ3513-102	V RESISTOR,W.CLOCK
		R74	QRSA08J-105YN	RESISTOR
		R75	QRSA08J-103YN	RESISTOR
		R76	QRSA08J-105YN	RESISTOR
		R77	QRSA08J-103YN	RESISTOR
		R78	QRSA08J-183YN	RESISTOR
		R79	QRSA08J-472YN	RESISTOR
		R80	QRSA08J-822YN	RESISTOR
		R81	QRSA08J-392YN	RESISTOR
		R82	QRSA08J-562YN	RESISTOR
		R83	QRSA08J-103YN	RESISTOR
		R84	QRSA08J-154YN	RESISTOR
		R85	QRSA08J-563YN	RESISTOR
		R86	QRSA08J-472YN	RESISTOR
		R87	QRSA08J-104YN	RESISTOR
		R88	QRSA08J-184YN	RESISTOR
		R89	QRSA08J-472YN	RESISTOR
		R90	QRSA08J-472YN	RESISTOR
		R92	QRSA08J-122YN	RESISTOR
		R102	QRSA08J-103YN	RESISTOR
		R122	QRSA08J-102YN	RESISTOR
		R123	QRSA08J-102YN	RESISTOR
		R200	QRSA08J-0R0Y	RESISTOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		C75	QETA1CM-227	E CAPACITOR
		C76	QCSB1HJ-220	CAPACITOR
		C77	QCSA1HJ-470	CAPACITOR
		C78	QCTA1UJ-330	CAPACITOR
		C79	QCYA1HK-103	CAPACITOR
		C80	QCTA1UJ-330	CAPACITOR
		C81	QCYA1HK-103	CAPACITOR
		C82	QEK61EM-475	E CAPACITOR
		C83	QCTA1CH-180	CAPACITOR
		C84	QCTA1CH-180	CAPACITOR
		C85	QCYA1HK-103	CAPACITOR
		C86	QCYA1HK-103	CAPACITOR
		C87	QCYA1HK-102	CAPACITOR
		C88	QCYA1HK-103	CAPACITOR
		C89	QCYA1HK-103	CAPACITOR
		C90	QCYA1HK-102	CAPACITOR
		C91	QEK61CM-106	E CAPACITOR
		C92	QCYA1HK-472	CAPACITOR
		C93	QCYA1HK-103	CAPACITOR
		C94	QCYA1HK-103	CAPACITOR
		C95	QCYA1HK-103	CAPACITOR
		C96	QCYA1HK-103	CAPACITOR
		C97	QCSA1HJ-471	CAPACITOR
		C98	QEK61CM-106	E CAPACITOR
		C99	QCYA1HK-472	CAPACITOR
		C100	QCYA1HK-103	CAPACITOR
		C101	QCYA1HK-103	CAPACITOR
		C102	QCYA1HK-103	CAPACITOR
		C103	QCYA1HK-103	CAPACITOR
		C104	QCYA1HK-103	CAPACITOR
		C105	QCYA1HK-103	CAPACITOR
		C106	QEK60JM-107	E CAPACITOR
		C107	QCYA1HK-103	CAPACITOR
		C108	QEK60JM-107	E CAPACITOR
		C109	QCYA1HK-103	CAPACITOR
		C110	QEK60JM-107	E CAPACITOR
		C111	QCYA1HK-103	CAPACITOR
		C112	QCYA1HK-103	CAPACITOR
		C113	QCYA1HK-103	CAPACITOR
		C114	QEF81CM-106	TANTAL CAPACITOR
		C115	QCYA1HK-123	CAPACITOR
		C116	QCYA1HK-103	CAPACITOR
		C117	QCYA1HK-103	CAPACITOR
		C126	QEK61AM-336	E CAPACITOR
		C127	QCYA1HK-103	CAPACITOR
		C128	QCYA1HK-103	CAPACITOR
		C129	QEK61AM-336	E CAPACITOR
		L1	PU48530-331J	PEAKING COIL
	⚠	CF1	PU60440	RESONATOR
		LC5	PU48530-331J	PEAKING COIL
		LC11	PU59736-221	N FILTER1
		LC12	PU59736-221	N FILTER2
		LC13	PU59736-221	N FILTER3
		LC14	PU59736-221	N FILTER4
		LC15	PU59736-221	N FILTER5
		LC16	PU48530-331J	PEAKING COIL
		LC18	PU59736-223	N FILTER
		LC19	PU59736-221	N FILTER
		LC20	PU59736-223	N FILTER
		LC21	PU59736-223	N FILTER
		LC22	PU59736-223	N FILTER
		LC23	PU59736-223	N FILTER
		LC24	PU59736-221	N FILTER
		LC25	PU59736-221	N FILTER
		LC34	PU59736-221	N FILTER
		LC36	PU59736-221	N FILTER
		LC37	PU59736-221	N FILTER
		LC38	PU59736-221	N FILTER
		LC39	PU59736-221	N FILTER
		X3	PU60573	CRYSTAL RESONATOR
		TH1	ERT-D2ZFL102S	THERMISTOR
			-DIGITAL ANALOG BOARD SECTION <50>-	
		PWBA2	PB10117B2-02	DIGITAL ANALOG BOARD ASSEMBLY
		IC1	M51271FP	IC
		IC2	NJM2217L	IC
		IC3	M51272FP	IC
		IC4	M51279FP	IC
		IC5	NJM2217L	IC
		IC20	TC74HC4053AF	IC
		IC22	BA226F	IC
		Q1	2SC2412K(RS)	TRANSISTOR
		Q2	DTC144EK	TRANSISTOR
		Q3	2SA1037K(RS)	TRANSISTOR
		Q4	2SA1037K(RS)	TRANSISTOR
		Q5	2SA1037K(RS)	TRANSISTOR
		Q6	2SC2412K(RS)	TRANSISTOR
		Q7	2SA1037K(RS)	TRANSISTOR
		Q8	2SC2412K(RS)	TRANSISTOR
		Q11	2SA1037K(RS)	TRANSISTOR
		Q12	2SC2412K(RS)	TRANSISTOR
		Q13	2SA1037K(RS)	TRANSISTOR
		Q16	2SC2412K(RS)	TRANSISTOR
		Q17	2SA1037K(RS)	TRANSISTOR
		Q18	2SA1037K(RS)	TRANSISTOR
		Q19	2SC2412K(RS)	TRANSISTOR
		Q21	DTC144EK	TRANSISTOR
		Q22	DTC144EK	TRANSISTOR
		R1	QRSA08J-103YN	RESISTOR
		R2	QRSA08J-333YN	RESISTOR
		R3	QRSA08J-471YN	RESISTOR
		R5	QRSA08J-222YN	RESISTOR
		R9	QRSA08J-823YN	RESISTOR
		R10	QRSA08J-222YN	RESISTOR
		R11	QRSA08J-102YN	RESISTOR
		R12	QRSA08J-102YN	RESISTOR
		R13	QRSA08J-102YN	RESISTOR
		R14	QRSA08J-102YN	RESISTOR
		R15	QRSA08J-471YN	RESISTOR
		R16	QRSA08J-471YN	RESISTOR
		R17	QRSA08J-183YN	RESISTOR
		R18	QRSA08J-333YN	RESISTOR
		R19	QRSA08J-153YN	RESISTOR
		R20	QVZ3513-473	V RESISTOR,COLOR LEVEL
		R21	QRSA08J-474YN	RESISTOR
		R22	QRSA08J-152YN	RESISTOR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R23	QVZ3513-473	V RESISTOR,COLOR PHASE
		R24	QRSA08J-510YN	RESISTOR
		R25	QRSA08J-241YN	RESISTOR
		R26	QRSA08J-823YN	RESISTOR
		R27	QRSA08J-222YN	RESISTOR
		R28	QRSA08J-103YN	RESISTOR
		R29	QRSA08J-223YN	RESISTOR
		R30	QVZ3513-223	V RESISTOR,AFC
		R31	QRSA08J-222YN	RESISTOR
		R32	QRSA08J-105YN	RESISTOR
		R33	QRSA08J-563YN	RESISTOR
		R35	QRSA08J-471YN	RESISTOR
		R36	QRSA08J-271YN	RESISTOR
		R37	QVZ3513-103	V RESISTOR,CARR BALANC(1)
		R38	QRSA08J-681YN	RESISTOR
		R39	QRSA08J-822YN	RESISTOR
		R40	QRSA08J-333YN	RESISTOR
		R41	QVZ3513-102	V RESISTOR,V LEVEL
		R43	QRSA08J-362YN	RESISTOR
		R44	QRSA08J-822YN	RESISTOR
		R45	QRSA08J-562YN	RESISTOR
		R46	QRSA08J-471YN	RESISTOR
		R47	QVZ3513-471	V RESISTOR
		R48	QVZ3513-472	V RESISTOR,BURST LEVEL
		R49	QVZ3513-103	V RESISTOR,CARR BALANC(1)
		R50	QVZ3513-102	V RESISTOR,V LEVEL
		R51	QRSA08J-102YN	RESISTOR
		R52	QRSA08J-823YN	RESISTOR
		R53	QRSA08J-222YN	RESISTOR
		R54	QRSA08J-183YN	RESISTOR
		R55	QRSA08J-333YN	RESISTOR
		R56	QRSA08J-153YN	RESISTOR
		R57	QRSA08J-474YN	RESISTOR
		R58	QRSA08J-152YN	RESISTOR
		R59	QVZ3513-473	V RESISTOR,PINP COLOR PHASE
		R60	QRSA08J-510YN	RESISTOR
		R61	QRSA08J-241YN	RESISTOR
		R62	QRSA08J-823YN	RESISTOR
		R63	QRSA08J-103YN	RESISTOR
		R64	QRSA08J-222YN	RESISTOR
		R65	QRSA08J-223YN	RESISTOR
		R66	QVZ3513-223	V RESISTOR,AFC
		R67	QRSA08J-222YN	RESISTOR
		R68	QRSA08J-105YN	RESISTOR
		R90	QRD162J-105	RESISTOR
		R91	QRSA08J-562YN	RESISTOR
		R93	QRSA08J-102YN	RESISTOR
		R94	QRSA08J-105YN	RESISTOR
		R95	QRSA08J-182YN	RESISTOR
		R96	QRSA08J-122YN	RESISTOR
		R97	QRSA08J-472YN	RESISTOR
		R98	QRSA08J-152YN	RESISTOR
		R99	QRSA08J-105YN	RESISTOR
		R101	QRSA08J-561YN	RESISTOR
		R105	QRSA08J-471YN	RESISTOR
		R106	QRSA08J-822YN	RESISTOR
		R108	QRSA08J-102YN	RESISTOR
		R109	QRSA08J-102YN	RESISTOR
		R110	QRSA08J-102YN	RESISTOR
		R113	QRSA08J-103YN	RESISTOR
		R117	QRSA08J-102YN	RESISTOR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R121	QRSA08J-102YN	RESISTOR
		R125	QRSA08J-102YN	RESISTOR
		R126	QRSA08J-222YN	RESISTOR
		R127	QRSA08J-222YN	RESISTOR
		R128	QRSA08J-471YN	RESISTOR
		R129	QRSA08J-222YN	RESISTOR
		R130	QRSA08J-473YN	RESISTOR
		R131	QRSA08J-471YN	RESISTOR
		R132	QRSA08J-222YN	RESISTOR
		R133	QRSA08J-222YN	RESISTOR
		R135	QRSA08J-473YN	RESISTOR
		R136	QRSA08J-222YN	RESISTOR
		R137	QRSA08J-105YN	RESISTOR
		R138	QRSA08J-561YN	RESISTOR
		R142	QRSA08J-102YN	RESISTOR
		R144	QRSA08J-102YN	RESISTOR
		R145	QRSA08J-821YN	RESISTOR
		R149	QRSA08J-471YN	RESISTOR
		R150	QRSA08J-102YN	RESISTOR
		R151	QRSA08J-332YN	RESISTOR
		R152	QRSA08J-471YN	RESISTOR
		R153	QRSA08J-331YN	RESISTOR
		R154	QRSA08J-152YN	RESISTOR
		R155	QRSA08J-102YN	RESISTOR
		R157	QRSA08J-563YN	RESISTOR
		R158	QRSA08J-102YN	RESISTOR
		R161	QRSA08J-0R0Y	RESISTOR
		R162	QRSA08J-0R0Y	RESISTOR
		R163	QRSA08J-0R0Y	RESISTOR
		R164	QRSA08J-0R0Y	RESISTOR
		C1	QEK61HM-105	E CAPACITOR
		C2	QEF81CM-474	TANTAL CAPACITOR
		C3	QEK61HM-105	E CAPACITOR
		C4	QCSA1HJ-221	CAPACITOR
		C5	QCY81HK-152	CAPACITOR
		C6	QCYA1HK-103	CAPACITOR
		C7	QCYA1HK-103	CAPACITOR
		C8	QEK61AM-336	E CAPACITOR
		C9	QCYA1HK-102	CAPACITOR
		C10	QCYA1HK-103	CAPACITOR
		C11	QCYA1HK-103	CAPACITOR
		C12	QEK61HM-105	E CAPACITOR
		C13	QCYA1HK-103	CAPACITOR
		C14	QEK61AM-336	E CAPACITOR
		C15	QCYA1HK-103	CAPACITOR
		C16	QEK61HM-225	E CAPACITOR
		C17	QCYA1HK-103	CAPACITOR
		C18	QCSA1HJ-100	CAPACITOR
		C19	PU57672-300	TRIMMER CAPACITOR,VCXO
		C20	QCYA1HK-103	CAPACITOR
		C21	QCYA1HK-103	CAPACITOR
		C22	QFN31HJ-333	M CAPACITOR
		C23	QCYA1HK-102	CAPACITOR
		C24	QEK61HM-224	E CAPACITOR
		C25	QCFA1EZ-683	CAPACITOR
		C26	QEK61HM-105	E CAPACITOR
		C27	QCTA1CH-681	CAPACITOR
		C28	QEK61AM-107	E CAPACITOR
		C29	QCYA1HK-103	CAPACITOR
		C30	QFV71HJ-104	M CAPACITOR
		C31	QCYA1HK-103	CAPACITOR
		C32	QCFA1HZ-473	CAPACITOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		C33	QEK61CM-106	E CAPACITOR
		C34	QCYA1HK-103	CAPACITOR
		C35	QCYA1HK-103	CAPACITOR
		C36	QEK61HM-105	E CAPACITOR
		C37	QCYA1HK-152	CAPACITOR
		C38	QCSA1HJ-8R0	CAPACITOR
		C39	QCSA1HJ-180	CAPACITOR
		C40	QCYA1HK-103	CAPACITOR
		C41	QCFA1HZ-473	CAPACITOR
		C42	QEK61CM-106	E CAPACITOR
		C43	QCYA1HK-103	CAPACITOR
		C44	QCYA1HK-103	CAPACITOR
		C45	QCYA1HK-103	CAPACITOR
		C46	QEK61AM-336	E CAPACITOR
		C47	QCYA1HK-103	CAPACITOR
		C48	QEK61AM-336	E CAPACITOR
		C49	QEK61HM-105	E CAPACITOR
		C50	QCFA1HZ-473	CAPACITOR
		C51	QCYA1HK-103	CAPACITOR
		C52	QEK61HM-105	E CAPACITOR
		C53	QEE41VM-474	TANTAL CAPACITOR
		C54	QEK61HM-105	E CAPACITOR
		C55	QCSA1HJ-221	CAPACITOR
		C56	QCYA1HK-123	CAPACITOR
		C57	QCYA1HK-103	CAPACITOR
		C58	QEK61AM-336	E CAPACITOR
		C59	QCYA1HK-102	CAPACITOR
		C60	QCYA1HK-103	CAPACITOR
		C61	QCYA1HK-103	CAPACITOR
		C62	QEK61HM-105	E CAPACITOR
		C63	QCYA1HK-103	CAPACITOR
		C64	QEK61AM-336	E CAPACITOR
		C65	QCYA1HK-103	CAPACITOR
		C66	QEK61HM-106	E CAPACITOR
		C67	QCYA1HK-103	CAPACITOR
		C68	QCSA1HJ-100	CAPACITOR
		C69	PU57672-300	TRIMMER CAPACITOR,VCXO
		C70	QCYA1HK-103	CAPACITOR
		C71	QCYA1HK-102	CAPACITOR
		C72	QCFA1EZ-683	CAPACITOR
		C73	QEK61HM-105	E CAPACITOR
		C74	QCTA1CH-681	CAPACITOR
		C75	QCYA1HK-103	CAPACITOR
		C76	QETC0JM-107	E CAPACITOR
		C77	QFV71HJ-104	M CAPACITOR
		C78	QCSA1HJ-560	CAPACITOR
		C113	QEN61CM-106	NP E CAPACITOR
		C114	QCYA1HK-103	CAPACITOR
		C116	QCYA1HK-103	CAPACITOR
		C119	QCYA1HK-103	CAPACITOR
		C123	QCYA1HK-103	CAPACITOR
		C124	QEF81CM-106	TANTAL CAPACITOR
		C125	QCSA1HJ-561	CAPACITOR
		C130	QCYA1HK-103	CAPACITOR
		C131	QCYA1HK-103	CAPACITOR
		C132	QEF81CM-106	TANTAL CAPACITOR
		C133	QCYA1HK-103	CAPACITOR
		C134	QCYA1HK-103	CAPACITOR
		C135	QCSA1HJ-561	CAPACITOR
		C137	QCYA1HK-103	CAPACITOR
		C139	QCYA1HK-152	CAPACITOR
		C140	QEK61AM-107	E CAPACITOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		L1	PU60480-101JZ	COIL
		L3	PU48530-100J	PEAKING COIL
		LPF1	PU58021-2	LOW PASS FILTER
		OR	PU60570	LOW PASS FILTER
		LPF2	PU60571	LOW PASS FILTER
		OR	PU60572	LOW PASS FILTER
		LPF3	PU60571	LOW PASS FILTER
		OR	PU60572	LOW PASS FILTER
		LPF5	PU60752	LOW PASS FILTER
		BPF1	PU57072	BAND PASS FILTER
		BPF2	PU57072	BAND PASS FILTER
		BPF3	PU57072	BAND PASS FILTER
		LC1	PU59736-223	N FILTER
		LC2	PU59736-223	N FILTER
		LC4	PU59736-221	N FILTER
		LC5	PU59736-221	N FILTER
		LC6	QRD162J-0R0	RESISTOR
		LC7	QRD162J-0R0	RESISTOR
		LC9	PU59736-223	N FILTER
		LC10	PU59736-223	N FILTER
		LC11	PU59736-223	N FILTER
		LC12	PU54223-101J	PEAKING COIL
		LC13	PU59736-223	N FILTER
		X1	PU60568	CRYSTAL RESONATOR
		OR	PU60569	CRYSTAL RESONATOR
		X2	PU60568	CRYSTAL RESONATOR
		OR	PU60569	CRYSTAL RESONATOR
		K1	PU60281-4	FERRITE BEADS
		HD1	PQ20627-1-3	SHIELD FRAME1
		HD2	PU60675	HOLDER, X22
		HN1	PU60674	HINGE, X21
		SCW1	SDST2606Z	TAPPING SCREW,X3
		SLD1	PQ20628-1-3	SHIELD CAS(1)SLD
		SLD2	PQ20629-1-2	SHIELD CAS(2)SLD
		SLD3	PQ32333	SHIELD PLATE3
		SPC1	PQ43349	SHEET1
		CN1	PU58844-2	CAP HOUSING
		CN2	PU58844-2	CAP HOUSING
		CN3	PU58844-5	CAP HOUSING
		CN5	PU59555-5	CAP HOUSING
			–DIGI. SUB BOARD INCL. DIGI.ANALOG B.AY–	
		PWBA	PB40048A	DIGITAL SUB BOARD ASSEMBLY
		Q1	2SA1037K(RS)	TRANSISTOR
		Q2	2SA1037K(RS)	TRANSISTOR
		D1	DAN202K	DIODE
		R1	QRSA08J-472YN	RESISTOR
		R2	QRSA08J-332YN	RESISTOR
		R3	QRSA08J-103YN	RESISTOR
		R4	QRSA08J-102YN	RESISTOR
		C1	QCYA1HK-103	CAPACITOR
		C2	QCSA1HJ-471	CAPACITOR

#	⚠	REF. NO	PART NO.	PART NAME, DESCRIPTION

TIMER BOARD ASSEMBLY <20>

	PWBA	PB10120A1-02	TIMER BOARD ASSY,FOR EG
		PB10120B1-01	TIMER BOARD ASSY,FOR E
	IC1	UPD75216ACW-16	IC
	IC2	S-8053HNB	IC
	IC301	SDA5642	IC,EG ONLY
⚠	Q1	2SD1863(QR)	TRANSISTOR
	Q2	2SC3311A(RS)	TRANSISTOR
	Q3	DTC124ES	TRANSISTOR
	Q5	DTC124ES	TRANSISTOR
	Q6	DTC124ES	TRANSISTOR
	D1	RD9.1ES-T1B2	ZENER DIODE
	OR	HZS9.1EB2TJ	ZENER DIODE
	D2	DA210S	DIODE
	D3	MTZJ5.1B	ZENER DIODE
	OR	RD5.1ES-T1B2	ZENER DIODE
	D4	MTZ8.2B	ZENER DIODE
	OR	RD8.2ES-T1B2	ZENER DIODE
	D5	MTZ8.2B	ZENER DIODE
	OR	RD8.2ES-T1B2	ZENER DIODE
	D6	1SS133	DIODE
	OR	MA165	DIODE
	D7	1SS133	DIODE
	OR	MA165	DIODE
	D8	1SS133	DIODE
	OR	MA165	DIODE
	D9	1SS133	DIODE
	OR	MA165	DIODE
	D10	1SS133	DIODE
	OR	MA165	DIODE
	D32	1SS133	DIODE
	R1	QRD161J-121	RESISTOR
	R2	QRD161J-222	RESISTOR
	R3	QRD161J-103	RESISTOR
	R4	QRD161J-682	RESISTOR
	R5	QRD161J-104	RESISTOR
	R6	QRD161J-151	RESISTOR
	R7	QRD161J-102	RESISTOR
	R8	QRD161J-104	RESISTOR
	R9	QRD161J-472	RESISTOR
	R10	QRD161J-102	RESISTOR
	R11	QRD161J-102	RESISTOR
	R12	QRD161J-102	RESISTOR
	R13	QRD161J-102	RESISTOR
	R14	QRD161J-102	RESISTOR
	R15	QRD161J-102	RESISTOR
	R16	QRD161J-102	RESISTOR
	R17	QRD161J-102	RESISTOR
	R19	QRD161J-102	RESISTOR
	R20	QRD161J-102	RESISTOR
	R21	QRD161J-102	RESISTOR
	R22	QRD161J-472	RESISTOR
	R23	QRD161J-472	RESISTOR
	R24	QRD161J-472	RESISTOR
	R25	QRD161J-472	RESISTOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R26	QRD161J-102	RESISTOR
		R29	QRD161J-472	RESISTOR
		R30	QRD161J-472	RESISTOR
		R31	QRD161J-472	RESISTOR
		R32	QRD161J-472	RESISTOR
		R33	QRD161J-472	RESISTOR
		R34	QRD161J-472	RESISTOR
		R35	QRD161J-472	RESISTOR
		R36	QRD161J-472	RESISTOR
		R37	QRD161J-472	RESISTOR
		R38	QRD161J-472	RESISTOR
		R39	QRD161J-472	RESISTOR
		R40	QRD161J-472	RESISTOR
		R41	QRD161J-472	RESISTOR
		R42	QRD161J-472	RESISTOR
		R43	QRD161J-333	RESISTOR
		R44	QRD161J-472	RESISTOR
		R45	QRD161J-472	RESISTOR
		R301	QRD161J-824	RESISTOR,EG ONLY
		R302	QRD161J-101	RESISTOR,EG ONLY
		R303	QRD161J-562	RESISTOR,EG ONLY
		R304	QRD161J-104	RESISTOR,EG ONLY
		R305	QRD161J-103	RESISTOR
		R306	QRD161J-103	RESISTOR
		R307	QRD161J-105	RESISTOR,EG ONLY
		R308	QRD161J-824	RESISTOR,EG ONLY
		R309	QRD161J-104	RESISTOR,EG ONLY
		R310	QRD161J-202	RESISTOR,EG ONLY
		RA1	QRB067J-224	RESISTOR ARRAY
		OR	QRB069J-224C	RESISTOR ARRAY
		OR	QRB069J-224	RESISTOR ARRAY
		RA2	QRB067J-104	NETWORK RESISTOR
		OR	QRB069J-104	NETWORK RESISTOR
		OR	QRB069J-104C	RESISTOR ARRAY
		RA3	QRB047J-333	RESISTOR ARRAY
		OR	QRB049J-333	RARRAY
		OR	QRB049J-333C	RESISTOR ARRAY
		RA4	QRB037J-104	NETWORK RESISTOR
		OR	QRB039J-104C	RESISTOR ARRAY
		OR	QRB039J-104	NETWORK RESISTOR
		C1	QETC1CM-336	E CAPACITOR
		C2	QETC1HM-335	E CAPACITOR
		C3	QCBB1HJ-102	CAPACITOR
		C4	PU60676-473	E CAPACITOR
		OR	QEA40HZ-473	E CAPACITOR(DOUBLE)
		C5	QETC1AM-336	E CAPACITOR
		C6	QETC0JM-336	E CAPACITOR
		C7	QCVB1CM-103	CAPACITOR
		C8	QETC1CM-106	E CAPACITOR
		C9	QCVB1CM-103	CAPACITOR
		C10	PU57672-200	TRIMMER CAPACITOR
		C11	QCT30CH-120	CAPACITOR
		C301	QFN31HJ-103	M CAPACITOR,EG ONLY
		C302	QFN31HJ-333	M CAPACITOR,EG ONLY
		C303	QFN31HJ-103	M CAPACITOR,EG ONLY
		C304	QETC1HM-104	E CAPACITOR,EG ONLY
		C305	QCBB1HJ-151	CAPACITOR,EG ONLY
		L1	PU48530-101K	PEAKING COIL
	⚠	X1	PU60226	CRYSTAL RESONATOR

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		SPC1	PU59210-002	W.LOKING SPACER, X3
	⚠	CP1	ICP-F10	CIRCUIT PROTECTOR

OPERATION BOARD ASSEMBLY <22>

	PWBA	PB20210A-01	OPERATION BOARD ASSY
	D201	SLR-34VC3F	LE DIODE, POWER
	D218	SLR-55MC3F	LE DIODE
	D219	SLR-55MC3F	LE DIODE
	R200	QRD161J-102	RESISTOR
	R211	QRD161J-222	RESISTOR
	R212	QRD161J-222	RESISTOR
	R213	QRD161J-332	RESISTOR
	R214	QRD161J-472	RESISTOR
	R215	QRD161J-103	RESISTOR
	R216	QRD161J-222	RESISTOR
	R217	QRD161J-222	RESISTOR
	R219	QRD161J-223	RESISTOR
	R220	QRD161J-563	RESISTOR
	R225	QRD161J-332	RESISTOR
	R226	QRD161J-472	RESISTOR
	R227	QRD161J-103	RESISTOR
	S201	PU57551	TACT SWITCH, POWER
	S203	PU57551	TACT SWITCH, EJECT
	S204	PU57550	TACT SWITCH, STOP
	S205	PU57550	TACT SWITCH, PAUSE
	S206	PU57550	TACT SWITCH, PLAY
	S207	PU57550	TACT SWITCH, REW
	S208	PU57550	TACT SWITCH, FF
	S210	PU57551	TACT SWITCH, TRACK +
	S211	PU57551	TACT SWITCH, TRACK –
	S213	PU57550	TACT SWITCH, MARK
	S214	PU57550	TACT SWITCH, ERASE
	S216	PU57550	TACT SWITCH, SLOW +
	S217	PU57550	TACT SWITCH, SLOW –
	HD1	PQM30038-1-2	LED HOLDER, FOR D201

SWITCH/DISPLAY BOARD ASSEMBLY <28>

	PWBA	PB10120A2-02	SW/DISPLAY BOARD ASSY,FOR EG
		PB10120B2-01	SW/DIS BOARD ASSY,FOR E
	IC101	MSC7112-01SS	IC
	IC102	M50253P	IC
	IC201	GP1U501	INFRARED RAYS UNIT
	OR	SPS-413	INFRARED RAYS UNIT
	Q101	2SK658	FE TRANSISTOR
	D106	SLR-55VC3F	LE DIODE
	D107	SLR-55DC3F	LE DIODE
	D108	SLR-55MC3F	LE DIODE
	D109	GL-3EG43	LE DIODE
	D110	GL-3EG43	LE DIODE
	D111	GL-3EG43	LE DIODE
	D200	MTZ5.1B	ZENER DIODE
	R101	QRD161J-102	RESISTOR
	R102	QRD161J-102	RESISTOR
	R103	QRD161J-102	RESISTOR
	R104	QRD161J-273	RESISTOR
	R105	QRD161J-102	RESISTOR
	R106	QRD161J-102	RESISTOR
	R107	QRD161J-271	RESISTOR
	R108	QRD161J-271	RESISTOR
	R109	QRD161J-271	RESISTOR
	R113	QRD161J-102	RESISTOR
	R114	QRD161J-821	RESISTOR
	R115	QRD161J-472	RESISTOR
	R116	QRD161J-472	RESISTOR
	R221	QRD161J-471	RESISTOR
	R402	PU60406	V RESISTOR, P.SHARP
	R407	PU60361	V RESISTOR, V.LOCK
	C101	QCBB1HJ-101	CAPACITOR
	C102	QER61HM-104	E CAPACITOR
	C103	QER60JM-336	E CAPACITOR
	C104	QCVB1CN-103	CAPACITOR
	C105	QER61VM-106	E CAPACITOR
	C106	QCSB1HJ-330	CAPACITOR
	C107	QCSB1HJ-330	CAPACITOR
	S1	PU60392-Z	TACT SWITCH
	S2	PU60392-Z	TACT SWITCH
	S3	PU60392-Z	TACT SWITCH
	S4	PU60392-Z	TACT SWITCH
	S5	PU60392-Z	TACT SWITCH
	S6	PU60392-Z	TACT SWITCH
	S7	PU60392-Z	TACT SWITCH
	S8	PU60392-Z	TACT SWITCH
	S9	PU60392-Z	TACT SWITCH
	S10	PU60392-Z	TACT SWITCH
	S12	PU60392-Z	TACT SWITCH
	S13	PU60392-Z	TACT SWITCH
	S14	PU60392-Z	TACT SWITCH
	S15	PU60392-Z	TACT SWITCH
	S16	PU60392-Z	TACT SWITCH
	S17	PU60392-Z	TACT SWITCH
	S18	PU60392-Z	TACT SWITCH
	S19	PU60392-Z	TACT SWITCH
	S20	PU60392-Z	TACT SWITCH
	S21	PU60392-Z	TACT SWITCH
	S22	PU60392-Z	TACT SWITCH
	S23	PU60392-Z	TACT SWITCH
	S24	PU60392-Z	TACT SWITCH
	S25	PU60392-Z	TACT SWITCH
	S26	PU60392-Z	TACT SWITCH
	FDP1	PU60500	F.DISPLAY PANEL,FOR E
	FDP1	PU60500-2	F.DISPLAY PANEL,FOR EG
	HD2	PQ31355-1-2	FDP HOLDE(R)
	HD3	PQ31356-1-2	FDP HOLDE(L)

#	⚠	REF. NO.	PART NO.	PART NAME, DESCRIPTION

UPPER DRUM BOARD <41>

		PWB1	PDM3017	UPPER DRUM BOARD

PRE/REC BOARD ASSEMBLY <43>

		PWBA	PU36328B-01	PRE/REC BOARD ASSEMBLY
		IC1	AN3380K	IC
		OR	AN3380NK	IC
		Q1	2SA1309R,S	TRANSISTOR
		Q2	2SC1740S(RS)	TRANSISTOR
		Q3	2SC1740S(RS)	TRANSISTOR
		Q4	DTC144WS	TRANSISTOR
		Q6	2SC1740S(RS)	TRANSISTOR
		D2	1SS133	DIODE
		OR	MA165	DIODE
		D3	1SS133	DIODE
		OR	MA165	DIODE
		R1	QRD161J-102	RESISTOR
		R2	QRD161J-222	RESISTOR
		R3	QRD161J-222	RESISTOR
		R4	QRD161J-391	RESISTOR
		R5	QRD161J-821	RESISTOR
		R6	QRD161J-391	RESISTOR
		R7	QRD161J-222	RESISTOR
		R8	QRD161J-222	RESISTOR
		R9	QRD161J-102	RESISTOR
		R10	QRD161J-122	RESISTOR
		R11	QRD161J-821	RESISTOR
		R12	QRD161J-331	RESISTOR
		R15	QRD161J-122	RESISTOR
		R16	QRD161J-153	RESISTOR
		R17	QRD161J-103	RESISTOR
		R18	QRD161J-222	RESISTOR
		R19	QRD161J-222	RESISTOR
		R20	QRD161J-332	RESISTOR
		R21	QRD161J-561	RESISTOR
		R22	QRD161J-391	RESISTOR
		R23	QRD161J-181	RESISTOR
		R24	QRD161J-151	RESISTOR
		R25	QRV144F-4122AY	CMF RESISTOR
		R26	QRD161J-562	RESISTOR
		R27	QRD161J-333	RESISTOR
		C1	QETC0JM-476	E CAPACITOR
		C2	QCVB1CN-103	CAPACITOR
		C3	QCVB1CN-103	CAPACITOR
		C5	QCVB1CN-103	CAPACITOR
		C6	QCSB1HJ-270	CAPACITOR
		C7	QCSB1HJ-560	CAPACITOR
		C9	QCSB1HJ-270	CAPACITOR
		C10	QCVB1CN-103	CAPACITOR
		C11	QCVB1CN-103	CAPACITOR
		C12	QCVB1CN-103	CAPACITOR
		C13	QFV41HJ-104	TF CAPACITOR
		C15	QEE41AM-335	TANTAL CAPACITOR
		C17	QCSB1HJ-680	CAPACITOR
		C18	QCVB1CN-103	CAPACITOR
		C19	QFV41HJ-104	M CAPACITOR
		C20	QER61CM-106	E CAPACITOR
		C21	QCBB1HJ-820	CAPACITOR
		C22	QCBB1HJ-820	CAPACITOR
		C23	QER61CM-106	E CAPACITOR
		C24	QCVB1CN-103	CAPACITOR
		C25	QEE40JM-685	E CAPACITOR
		C26	QETC0JM-476	E CAPACITOR
		C27	QCBB1HJ-121	CAPACITOR
		C29	QCSB1HK-4R7	CAPACITOR
		C31	QCVB1CN-103	CAPACITOR
		L1	PU48530-101K	PEAKING COIL
		L3	PU59152-560J	PEAKING COIL
		L4	PU59152-470J	PEAKING COIL
		L6	PU59152-330J	PEAKING COIL
		L7	PU48530-101K	PEAKING COIL
		L8	PU59152-680J	PEAKING COIL
		L9	PU59152-100J	PEAKING COIL
		L10	PU59152-8R2J	PEAKING COIL
		L11	PU59152-150J	PEAKING COIL
		BKT1	PQ42955	BOARD BRACKET, FOR PRE/REC
		ETH1	PQ40433-2	EARTH LUG
		SCW1	DPSP2606Z	SCREW, X3
		SLD1	PQ42959	SHIELD CASE
		SLD2	PQ42960	SHIELD PLATE
		SLD3	PQ42961	SHIELD COVER
		SPC1	WBS2600Z	T.L.WASHER
		CN1	PU58844-8	CAP HOUSING
		CN2	PU58844-6	CAP HOUSING
		CN3	PU56258-4	CAP HOUSING

DECK TERMINAL BOARD ASSEMBLY <51> & <53>

		PWBA	PB20013A-03	DECK TERMINAL BOARD ASSY
		–DECK TERMINAL BOARD SECTION <51>–		
		PWBA1	PB20013A1	DECK TERMINAL BOARD ASSY
		R1	QRD181J-151	RESISTOR
		R3	QRD181J-331	RESISTOR
		PHS	PU60271	PHOTO INTERRUPTER
		WR1	PW30110-26DD885	PARALLEL WIRE, NOT INCLUDED

≠ ⚠ REF. NO.	PART NO.	PART NAME, DESCRIPTION

RELAY BOARD ASSEMBLY <52>

PWBA2	PB20013A2	RELAY BOARD ASSY
LC1	PU59736-223	N FILTER
LC2	PU59736-223	N FILTER

REC SAFETY BOARD SECTION <53>

PWBA3	PB20013A3	REC SAFETY BOARD ASSY
SW1	PU58644-1-3	REC SAFETY SWITCH

END SENSOR BOARD ASSEMBLY <54>

PWBA	PB20013A4	END SENSOR BOARD ASSY
Q1	PN268R-NC	PHOTO TRANSISTOR
HD1	PQ31047-1-4	E.S.HOLDER
CN1	PU59945-102	WIRE SOCKET

CASSETTE HOUSING BOARD <56>

PWB1	PB30043	CASSETTE HOUSING BOARD
Q1	PN268R-NC	PHOTO TRANSISTOR
R1	QRD162J-471	RESISTOR
PHS1	PU58879	PHOTO INTERRUPTER
CN1	PU58844-106	CAP HOUSING

REMOTE PAUSE BOARD ASSEMBLY <69>

PWBA	PB10125A2	R.PAUSE BOARD ASSEMBLY
J1	PU60659	MINI JACK